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SELECTED PAPERS.

Account of some Experiments made with Newman's Blow-pipe, *by inflaming a highly condensed Mixture of the gaseous Constituents of* WATER; *in a Letter to the Editor, from* EDWARD DANIEL CLARKE, LL.D. Professor of Mineralogy in the University of Cambridge.

[From the Journal of Science and the Arts, No. III.]

To the Editor.

SIR,

IF the chemists of former ages had been told that to increase the action of *fire* it is necessary that the combustible be *water*, some such author as *Agricola*, or *Bernard Cæsius*, in his chapter "*de Aquarum miraculis*," would perhaps have maintained that this truth was mystically typified in the rape of *Proserpine*, by *Pluto*, from the fountain of *Cyane*. This wonderful property in the constituents of *water* is however now so well known, that it may serve to illustrate some remarkable phænomena of fusion in volcanoes, whose apertures, ejecting torrents of liquid rocks, are, in fact, so many *blowpipes* upon a large scale; whence mixed *gases*, which have resulted from the decomposition of *sea-water*, and which have undergone the utmost *compression*, make their escape in a state of *ignition*.

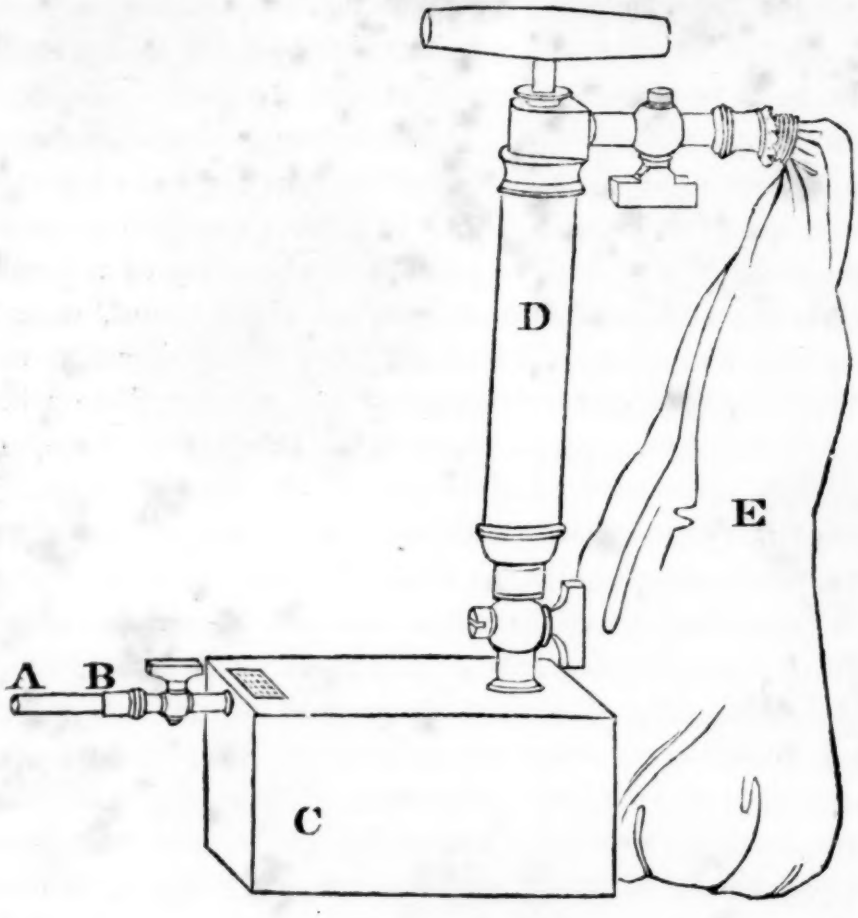
Of the power of heat produced by burning together *hy-*

drogen and *oxygen gases*, every one has been aware who has attended to the experiments for the composition of *water*.* Having occasion to allude to the temperature thereby excited, during the last Course of my Public Lectures in this University, and with reference to observations that I had myself made upon Mount *Vesuvius*, I used an apparatus adapted to the blow-pipe made by Mr. *John Newman*, the construction of which was explained by Mr. *Newman* himself, in a communication to the first Number of your Journal.† Upon this occasion the flame of a common *spirit* lamp was propelled by a stream of condensed *oxygen* from the reservoir of the *apparatus:* but the *hydrogen* from the *alcohol* not being afforded in the proper proportion for producing the greatest heat, I consulted Mr. *Newman* upon the subject, who recommended that a condensed mixture of the two *gases* should be ignited instead of the *spirit* lamp. The danger of such an experiment with an explosive mixture, was obvious: several eminent chemists considered it as extremely hazardous; but it was suggested by Mr. *Newman*, that upon the principle of *Sir H. Davy's* wire-gauze safe-lamp, there would be no danger if the mixed gases, previously to their ignition, were made to pass through a capillary tube. Upon this I applied to *Sir H. Davy*, and requested to have his opinion. He replied, that he had tried the experiment, and that he was convinced "there would be no danger in burning the compressed gases by suffering them to pass through a fine thermometer tube, $\frac{1}{80}$ of an inch diameter and three inches in length." In consequence of this encouragement I obtained from Mr. *Newman* the necessary

* The first application of these *gases* to aid the operations of the *blow-pipe* was made in 1802, by an American, *Robert Hare*, jun. Professor of Natural Philosophy in the University of Philadelphia. (*See Bruce's American Mineralogical Journal, Vol. I. No.* 2. *p.* 97, *Note.*) An account of Mr. *Hare's* experiments also appeared in the *Annales de Chimie*, No. 134, entitled *Mémoire sur l'usage du Chalumeau, et les Moyens de l'alimenter d'Air, &c.* The first usage of the gases in a state of mixture from a common reservoir was made by an unknown native of Germany.

† See Journal of Science and the Arts, No. I. Art. VII. p. 65. Also *Thompson's Annals* for May 1816, p. 367. It was first exhibited in *Cambridge* by the Rev. Mr. *Powell*, of Trinity College, during a Course of Lectures upon the Chemistry of Agriculture.

apparatus* and began a course of experiments, which have already been attended with some curious results. These ex-



periments were made in the presence of the Rev. Mr. *Cumming*, our Professor of Chemistry, who kindly supplied me with whatever chemical apparatus was required; the Rev. *J. Holmes*, well known for his analytical researches; Dr. *Ingle*, and other members of this University. As these gentlemen were not always all of them with me at once, nor the experiments all made at the same time, I shall, in stating them, attend only to the order in which they occurred, without men-

* See the annexed wood-cut.
A. B. is the *glass-tube*.
C. The *Reservoir* for the condensed *gas*.
D. The *Piston* for condensation.
E. The *Bladder* holding the gaseous mixture previously to its condensation.

tioning the precise day when they were exhibited, or the names of the persons who were present.

Having exhausted the reservoir of the *blow-pipe* C, of atmospheric air, a *gaseous* mixture was introduced, and as highly condensed as possible, by means of the piston D, consisting of two parts by bulk, of *hydrogen*, and one part of *oxygen*:* which in all the following experiments I have found to afford, when ignited, the greatest degree of heat. A portion of this mixture being allowed to pass through the orifice of the *blow-pipe*, was ignited at the extremity of the glass tube A. B.; and such was its exalted temperature, that, as the sequel will prove, it has banished altogether the character of *infusibility* from the list of chemical tests to which minerals may be exposed. I cannot believe that this temperature has yet been exceeded by that of any apparatus hitherto employed. *Platinum* was not only fused the instant it was brought into contact with the flame of the ignited *gas*, but the melted metal ran down in drops. Some of these drops, which fell from a wire of *platinum* $\frac{1}{20}$ of an inch in diameter, weighed five grains. But the rapid fusion of *platinum* was not the only remarkable circumstance attending this experiment; it was accompanied by the combustion of the metal itself; which caught fire and continued to burn like *iron* wire in *oxygen gas*, with a vivid and beautiful scintillation. Afterwards we found that we were thus deprived of a valuable means of supporting less fusible substances, when we wished to expose them to the action of the flame; a small but stout crucible of *platinum* being incapable of sustaining the heat without becoming ignited, and fusing, as in the former instance.

Our next experiments were made with *palladium*. This metal became fused with greater rapidity than the *platinum*. It melted before the flame like *lead;* and beginning to burn,

* The intensity of the heat depends upon the purity, as well as exact proportion of the two *gases*. The *oxygen* obtained from *manganese*, does not cause any thing like the heat which is occasioned by mixing with *hydrogen*, the *oxygen* produced from the *hyper-oxy muriate* of *potass*. The *light* produced during the combustion of the *gaseous* mixture is, in the latter instance, fully as intense as that which is occasioned by burning *charcoal* with the aid of the most powerful *galvanic* battery.

exhibited sparks of a fiery red colour diverging from the focus in brilliant rays. The metal after fusion had a dull aspect, its surface being irregular and tarnished, like *pewter* that has been long exposed to the air of the atmosphere. A singular effect of heat was observed upon a polished lamina of *palladium:* instead of the blue colour usually given to this metal, by flame, when urged by the common blow-pipe, a beautiful *spectrum* appeared, displaying all the hues of the rainbow, and in the same order.

These experiments had taken place when we began to make trials of the *earths*. We began with *lime*, exposing to the flame a small portion of this *earth* in its greatest purity. It was supported in a cup, or crucible, which Professor *Cumming* had prepared by twisting spirally some *platinum* wire of the thickness already mentioned. This was no sooner exposed to the action of the ignited *gas*, than the vivid combustion and fusion of the *platinum* gave us reason to apprehend that the *lime* would disappear among the melted metal; it was however obtained in a state of evident fusion, its upper surface being covered with a limpid botryoïdal vitreous appearance somewhat resembling *hyalite;* the inferior surface, owing to a cause we have not ascertained, was quite black;* and the whole, when examined with a lens, appeared studded over with exceeding minute globules of *platinum*. In a second trial which we made with *lime*, some of the globules of the vitrified *earth* were of a wax-yellow colour; the *platinum* melting among it as before. A lambent *purple* flame always accompanies the fusion of *lime*.

Having thus succeeded in the fusion of pure *lime*, our next experiments were made with *magnesia*, and this *earth* became repeatedly fused; the fused mass in the several trials exhibiting either a porous glass, so light as to be driven off by the action of the gas, or else globules of a fine amber colour. The last happens when *magnesia* is supported by *pipe-clay;* the *clay* fusing with it upon *charcoal;* the *magnesia* after being mixed with *oil*, was reduced to a *slag*, which fell into a white

* Possibly owing to the presence of a small portion of *carbonic acid* retained by the *lime*, and which may have been decomposed.

powder again, and seems therefore to be *metallic*. The fusion of *magnesia* is attended by combustion, and the same coloured flame as *lime* and *strontian*.

We now began with *barytes*. The fusion in this instance was comparatively easy. The *barytes* was supported upon a crucible of *platinum*. It soon became fused, and exhibited a dingy metallic slag, looking like *lead;* but after a short exposure to the air it became covered with a whitish powder, and was restored again to the state of an *earthy* oxide.

Strontian was then exposed to the same test; when a partial combustion of the *earth* ensued, accompanied by a beautiful lambent flame of an intense amethystine colour: but the fusion here was slow and difficult. At last, after some minutes of exposure to the utmost heat of the *ignited gas*, there appeared a small oblong mass of shining metal in the centre of the *strontian*, (the rest being semi-fused) which Professor *Cumming*, owing to the lustre, suspected to be *platinum;* this, however, after being exposed to the air for a few minutes, again assumed a white *earthy* appearance.*

Silex and *alumine* were next brought under the action of the *blow-pipe*. The first became instantly fused, and exhibited a deep orange-coloured glass; which upon continuing the heat seemed to be partly volatilized, leaving a pale yellow transparent glass upon the *platinum*, which diffused itself in a thin superficies over the metal. The *alumine* was also melted with great rapidity, into globules of a yellowish transparent glass. In these experiments with the *earths* some changes were effected in the *platinum* used as a supporter, which ought to be noticed. When *lime*, *magnesia*, *barytes* or *strontian*, were melted upon *platinum*, this metal was deprived of its lustre, and its surface becoming tarnished, appeared to be covered with a thin scaly superficies resembling the *amalgams*, either of *mercury* with *silver*, or of *mercury* with *tin;* but when *silex* or *alumine* were

* It is necessary to remark here that the *metallic* appearances both in the instance of *barytes* and of *strontian*, were in all probability due to the *platinum* used as a support, although derived from the *metals* of these *earths*, exhibited in a state of alloy; because when *strontian* was subsequently fused in a crucible of pure *plumbago*, it was converted into a porous vitrified slag, of a dingy greenish colour inclining to yellow.

fused, no alteration of the *platinum* was observed. Owing to these changes in the *platinum*, and also to its constant fusion and combustion during these experiments, I substituted a small crucible of very pure *carburet* of *iron*, from the *Borrowdale* mine, and again exposed pure *lime* to the flame of the ignited *gas*. Nearly the same result was, however, obtained; the *lime* became fused; its upper surface exhibiting limpid transparent globules of glass; the only difference in the experiment being, that an evident combustion took place during the utmost intensity of the heat.

Afterwards the *alkalies* were severally submitted to the same test; but their fusion and subsequent volatilization took place with such rapidity, that they disappeared almost in the same instant that they came into contact with the flame.

The most infusible of the substances considered as *simple*, being thus proved to be incapable of resisting the action of such a fire, we made trials of the most refractory of the native *compounds;* and the following statement of the results obtained has been made, perhaps with as much brevity as the nature of the subject will admit.

1. *Rock crystal.* In the first trial the edges only were fused, and resembled *hyalite*. In the second trial the fusion was complete: the crystal appeared in the form of one of *Prince Rupert's drops;* having lost nothing of its transparency, but being full of bubbles.
2. *Common white quartz.* The same appearance after fusion as the *rock crystal.*
3. *Noble-opal.* Pearl-white enamel; fusion perfect. The *opal*, after fusion, has great resemblance to the stalactitic *siliceous pearl* of *Tuscany*.
4. *Flint.* A snow white frothy enamel; fusion perfect, and very rapid.
5. *Chalcedony.* A snow-white enamel; fusion perfect.
6. *Egyptian Jasper.* This substance contains so much water, that the decrepitation, even of its smallest particles, causes its dispersion when presented to the flame. To prepare it therefore for the action of the blow-pipe, Professor *Cumming* exposed it to a strong heat in a

covered *platinum* crucible; afterwards the particles were easily fused into a greenish glass full of bubbles.

7. *Zircon.* Becomes opake and of a white colour; its superficies only being fused, and exhibiting a white enamel like porcelain.
8. *Spinelle.* Fuses readily and undergoes partial combustion, with loss of colour and weight. One of the solid angles of an octahedral crystal was entirely burned off and disappeared.
9. *Sapphire.* A fine dodecahedral crystal of blue *sapphire* exhibited, during fusion, the singular appearance of greenish glass *balloons*, swelling out in grotesque forms, which remained fixed when the mineral became cool.
10. *Topaz.* A white enamel covered with minute bubbles.
11. *Cymophane.* Pearl-white enamel.
12. *Pycnite.* Snow-white enamel.
13. *Andalusite.* Snow-white enamel.
14. *Wavellite.* Snow-white enamel.
15. *Rubellite*, or *red Siberian Tourmaline.* Loss of colour—a white opake enamel; by continuing the heat, a limpid colourless glass.
16. *Hyperstene.* Jet black shining glass bead, with a high degree of lustre.
17. *Cyanite.* Snow-white frothy enamel; fuses very readily.
18. *Talc.* The purest foliated varieties of this mineral were fused, and exhibited a greenish glass.
19. *Serpentine.* Many different varieties of *Serpentine* were fused, and exhibited globules of an oak-apple green colour with an indented surface.
20. *Hyalite.* A snow-white frothy enamel, full of brilliant limpid bubbles. The specimens fused were selected from masses highly diaphanous, which invested the surface of decomposing *trap.*
21. *Lazulite.* Fused into a transparent and almost colourless glass slightly tinged green, and full of bubbles.
22. *Gadolinite.* Fused quickly, and exhibited a jet black shining glass with a high degree of lustre.

23. *Leucite.* Fused into a perfectly limpid colourless glass containing bubbles.

24. *Apatite* of *Estremadura.* This substance was fused into a white enamel resembling spermaceti in appearance. Some pure sparry *apatite* detached from a matrix of *magnetic iron* as found in *Lapland*, was fused into a chocolate brown glass, and became magnetic, owing to the iron; to which its colour was also due.

25. *Peruvian emerald.* Fused readily into a round bead of the most beautiful limpid glass without bubbles; having entirely lost its *green* colour, and resembling white *sapphire.*

26. *Siberian beryl.* This substance is often infusible with a common blow-pipe. It fused into a limpid glass containing bubbles.

27. *Potstone.* Fused very readily with combustion, exhibiting a remarkable appearance. The fused mass appeared as glass of a dingy walnut green colour, almost black; but when examined with a lens all the rest of the mass exhibited limpid needle-form crystals, highly transparent.

28. *Hydrate of magnesia*, or *pure foliated magnesia*, from *America.* This substance is more difficult of fusion than any other. I succeeded, however, with the utmost intensity of the heat, in reducing it to a white opake enamel, which was invested with a thin superficies of limpid glass. Its fusion was accompanied with a purple coloured flame.

29. *Sub-sulphate of alumine.* This substance admits of a very rapid fusion, into a pearl white translucid enamel. Its fusion is also accompanied by a partial combustion.

30. *Pagodite of China.* Readily fuses into a beautiful limpid colourless glass bead; exhibiting a high degree of lustre.

31. *Iceland spar.* Perfect fusion into a brilliant limpid glass, but with greater difficulty than any other substance excepting the *Hydrate* of *magnesia.* During the experiment a beautiful lambent flame, of a deep amethystine hue, exactly resembling that from *strontian*, was ex-

hibited; denoting the combustion of some substance: and this remarkable phænomenon characterises the fusion of pure *lime* and all its compounds.

32. *Common chalk.* Fusion into a yellowish grey enamel. By continuing the heat a clear pearly glass was obtained, resembling the *Silicious pearl* of *Tuscany.* The same purple flame appeared, as in the preceding experiment with *Iceland spar.*

33. *Arragonite.* Same fusion as pure *lime;* but difficult to obtain, owing to the crumbling disposition of the mineral when exposed to heat. Its fusion was accompanied by the *purple* flame as in that of pure *lime* and of *strontian.*

Combustion of the Diamond.

This experiment having often taken place at an inferior degree of temperature, was hardly necessary; but it was thought that a correct statement of the different appearances exhibited by the *diamond* during its combustion, might be interesting. We selected a fine octahedral diamond of an amber colour, weighing six carats.

At the first application of the extreme heat it became limpid and colourless; afterwards it appeared of a pale white colour; then it became quite opake and resembled *ivory*, being now diminished in bulk and weight. After this, one of the solid angles of the *octahedron* disappeared, and the surface of the *diamond* became covered with bubbles; next, all the solid angles were burned off, and there remained only a minute spheroïdal globule shining with a considerable degree of *metallic lustre;* lastly, every atom was volatilized; the whole experiment being completed in about three minutes.

Experiments with some of the Metals.

1. *Volatilization of pure gold.* As this experiment was attended with the developement of a peculiar colour during the dissipation of *gold*, which has not been before noticed, it will be proper to give a more explicit statement than in the preceding instances. That the metal might be exposed in its purest state to the

action of the ignited *gas*, I made use of it as precipitated from the solution of *tellurium* in nitric acid. A small quantity thus obtained was fused with borax upon the tube of a tobacco pipe, and reduced into a bead commodiously mounted for being brought into contact with the flame of the ignited *gas*. In the first action of the heat the light was so intense that the gold bead not being discernible in the midst of it, the operation was checked, when it appeared that the *pipe clay* had been fused, the *borax* having the appearance of a glass of *gold*, and the tube of the tobacco pipe being also invested with a shining surface of the metal, resembling *gold* that has been highly burnished. Around the whole, there appeared, upon the pipe clay, a *halo* of the most lively rose-colour, extremely beautiful, and, as to colour, not unlike the appearance exhibited by the *oxide* of *rhodium* when rubbed upon white paper. By renewing the application of the heat, the bead of *gold*, which had been considerably diminished in size, was nearly all volatilized.

2. *Burning of brass wire.* The combustion of *brass* wire, owing to the *zinc*, was very rapid; and it was accompanied by a flame of a *chrysolite* green colour, differing from that afforded by pure copper. The wire being held in a pair of *iron* forceps, the *iron*, towards the end of the experiment, began to burn with the *brass*; the unburnt part of it being also covered with a deposition from the *zinc*, in the form of a flocculent white oxide.*

3. *Copper wire.* Became rapidly fused, but did not burn.

4. *Iron wire.* Very stout *iron* wire was rapidly consumed: the

* The combustion of *brass* being thus attended by a deposition of the *flowers* of *zinc* upon the *iron* used as a support, a very easy test is afforded of distinguishing ancient *bronze* from modern *brass*. I made an experiment with some *bronze* discovered in a tomb near to the *London* road, between *Sawston* and *Cambridge;* which fused like pure *copper*, without combustion, and without any deposition of *zinc;* and found afterwards that it was a compound of *copper* and *tin*, or *bronze*. Owing to this circumstance, Mr. *Newman's* blow-pipe may perhaps become as necessary to the cabinet of the *antiquary*, as to laboratory of the *chemist*.

metal during combustion exhibiting a vivid and highly brilliant scintillation.

5. *Plumbago.* This substance was fused into a *magnetic bead;* the fusion being attended with partial combustion of the *iron.*

6. *Red oxide of Titanium.* Fused, with partial combustion, into a dark-coloured bead.

7. *Red Ferriferous copper.* Rapid fusion, with combustion, into a black slag; by continuing the heat the metal was finally developed in its pure state.

8. *Blende,* or common crystallized *sulphuret of zinc.* This substance was fused and reduced to the metallic state; the metal appearing in the centre of the mass; but the parts most exposed to heat were volatilized and deposited in the form of a white oxide, which covered the charcoal used as a support. During this experiment the flame appeared of a *blue* colour.

9. *Brown and yellow oxides of platinum, precipitated from the solution of the metal in nitro-muriatic-acid, by the muriate of tin.* These oxides being placed in a crucible of *pipe-clay,* and mixed with a little *borax,* were speedily reduced to the metallic state, and appeared in the form of minute globules shining in the *borax* glass with great lustre.

10. *Grey oxide of Manganese.* This mineral contains so much water, that it was necessary to expose it for some time to a powerful heat in a crucible, to avoid decrepitation in the particles to be exposed to the ignited gas. It was afterwards fused with great ease into a metallic slag, which admitted the action of the file, and exhibited a shining metallic surface, having the lustre of *iron,* but somewhat darker.

11. *Metalloïdal oxide* of *Manganese,* crystallized in right prisms with rhomboidal bases. As this variety, according to *Vauquelin,* is the purest of all the ores of *manganese,* being destitute of *iron,* it was natural to expect that its reduction would exhibit the metal in a state of purity. It was instantly reduced to a brilliant *metal* rather

whiter than *iron*; it also burns like *iron;* sending out sparks during its combustion.

12. *Wolfram*, or dark *oxide* of *Tungsten*. This substance was readily fused, and as speedily reduced to the *metallic* state. It was first melted into a *black slag*, which by continuance of the heat was kept boiling upon *charcoal* for three minutes. It then exhibited a *metallic* bead, which upon examination resembled in appearance the *magnetic iron* of *Lapland;* not being however *magnetic*. It admitted the action of a sharp fine file, disclosing a *metallic* surface with a very high degree of lustre.

13. *Sulphuret* of *Molybdenum*. Became instantly fused, sending forth dense white fumes, and covering a pair of *iron* forceps whereby it was supported, with a snow-white oxide; among which, with a lens, minute globules of a silver white metal were discernible. The melted mass itself was reduced to a *metal*, upon which the file acted, and disclosed a *metallic* surface resembling that of *arsenical iron*.

14. *Siliceo-calcareous Titanium*. Some crystals of this substance were given to me by *H. Warburton*, Esq.; they had been brought by the late Professor *Tennant* from the *Sevres* porcelain manufactory. Having selected a very perfect and translucid crystal, and exposed it to the flame of the ignited *gas*, it was instantly reduced to the *metallic* state, being so far *ductile*, that when acted upon by the file and examined with a lens, it was evident that the teeth of the file had dragged it. This *metal* is of a brilliant white colour, and like all those obtained from the *brittle metals*, yet retains its metallic lustre, not becoming oxided by the action of atmospheric air. The surface also crystallizes in cooling; as do those of almost all the *metals* of this order.

15. *Black oxide of Cobalt*. Fused and reduced to the *metallic* state, it has a white silvery appearance, and is partly *ductile*. This substance being held by a pair of *iron* forceps, they became invested during its fusion with a

shining slag like black varnish. The metal does not become oxided by exposure to atmospheric air.

16. *Pechblende*, or *dark Oxide of Uranium*. Reduced to a metal resembling steel; but so exceedingly hard that the sharpest file will scarcely touch it. During fusion it deposits on *iron* forceps, a *yellow* oxide of the colour of the Canary bird.

17. *Siliciferous Oxide of Cerium*. Speedily reduced to the *metallic* state. A bead of the metal obtained by fusion exhibited *crystallization* upon its surface in cooling. It became covered with shining dendritic acicular crystals, like those of the *sulphuret of antimony*. Being afterwards filed, it exhibited a bright *metallic* surface, resembling that of *arsenical iron* in lustre and colour. This *metal* also preserves its *metallic* form unaltered by the action of the atmosphere.

18. *Cromate of Iron*. Fusible with ease into a dark globule, without any *metallic* lustre, but highly magnetic.

19. *Ore of Iridium*. I had proceeded thus far in my experiments, when I received a letter from Dr. Wollaston, recommending that a trial should be made of this substance. Professor Cumming accordingly supplied me with some very pure grains of the *ore of Iridium*, which *Dr. Wollaston* had sent to him. These grains were placed upon *charcoal*, and brought into contact with the ignited *gas*. At their first exposure to heat, they became agglutinated and partially fused, shining in the parts where fusion had taken place with a bright *platinum* lustre. After placing the agglutinated mass of *Iridium* upon *plumbago*, and continuing the heat, the fusion was perfected. The *metal* then boiled, and began to burn with scintillation, depositing a reddish coloured oxide upon the *plumbago*. Nothing then remained but *glass;* in which state it was sent to *Dr. Wollaston*.

In thus describing the action of the ignited *gas* upon those substances which were hitherto considered as being *infusible*, it will be proper to add, that there are many other minerals

improperly classed as *infusible* by some chemists and mineralogists, which are *fusible* by means of the common blow-pipe; and therefore they have not been included in the list. Of this number, are *jada*, *mica*, *amianthus*, *asbestus*, &c. all of which melt like wax before this powerful apparatus. Again, there are other substances often described as being *fusible*, which are not so by means of a *common blow-pipe;* of this number is the diaphanous *marekanite of Kamschatka*, considered as a variety of *obsidian;* and which appears in *pseudo-crystals* of the *garnet* form, or rhomboidal dodecahedrons. I never was able to effect even the slightest appearance of *fusion* upon the minutest particles of this mineral, although I have exposed it during a quarter of an hour to the utmost heat of the flame of a *wax* candle, urged by the common *blow-pipe*. When brought before the flame of the *ignited gas*, the fusion was slow and tranquil. The *marekanite* then exhibited a small globule of limpid colourless glass, like that of rock-crystal after fusion; but having a high degree of lustre and transparency, and being free from bubbles.

To enter upon a detail of the changes produced in bodies that were before known to be *fusible*, would extend this article to too great a length for insertion in your Journal. I shall therefore confine the rest of my observations to those results which I obtained by a renewal of my experiments upon the *earths;* whereby I was enabled to establish, beyond a doubt, the *metallic* nature of *barytes* and *strontian*, and to exhibit the *metals* obtained from those *earths*, in the presence of the gentlemen before mentioned, and of other members of the University. I also obtained, in one instance, a *metal* from pure *silex*, which still retains a greater degree of *metallic lustre* and *whiteness* than the purest *silver;* but this last *metal* I have not been able yet to reproduce in a manner altogether satisfactory. To begin therefore with *barytes*.

Having obtained a portion of this *earth* in a state of purity, I mixed some of it (*August* 20,) with *lamp oil*, and rubbed both together in a *porcelain* mortar, into a paste.* This *paste* being placed upon *charcoal*, was brought to the *ignited gas*,

* This process however is not necessary. I have subsequently found that

and kept exposed to its most intense heat, for some minutes.* By this means it was fused, and assumed the form of a black shining *slag*, like that of *iron* from a foundry. A small portion of this *slag* was then held, by means of a little *borax*, upon the end of the tube of a tobacco-pipe; and again exposed to the *ignited gas*. The *slag* being now firmly fixed upon the pipe-clay admitted the action of the file, and exhibited a shining *metallic* surface, resembling that of silver. This experiment was repeated many times, sometimes with *charcoal*, and sometimes without, and always with the same result. In every instance, the *slag*, when filed, exhibited *metallic* lustre, which when the *metal* was pure appeared brighter than *silver*; if imperfectly obtained, it resembled *lead;* and sometimes it had hardly any *metallic* lustre and resembled *horn*. I then determined to watch the effect that might be produced by keeping the *slag* upon *charcoal* during a long continuance of the heat. For this purpose, I consumed three measures of the condensed *gas*, from the reservoir of the *blow-pipe*. The *slag* was reduced to a *yellowish* glass; and the flame was tinged, during the utmost intensity of the heat, with a *ehrysolite-green* colour. Believing from the appearance of this *glass* that I had continued the heat too long,† and that the *metal* was consumed, I tried what effect would be produced upon it by moisture, by placing it in a wine-glass half filled with pump water. It began slowly to decompose the water; there falling off into the liquid, from the surface of the glass, a whitish powder. I then added some *nitric* acid; but the solution being very slow, and almost imperceptible, I took out the small lump of glass, and having examined it with a lens, perceived that a dark substance, resembling *lead*, existed towards the centre of the mass. Bringing it therefore again to the action of the *ignited gas*, it became fused once more into a black shining *slag*, in all parts that

the earth of *barytes* is instantly reducible to the *metallic* state, without any addition either of *oil* or of *charcoal*.

* The heat may be always graduated by increasing or diminishing the volume of gas from the aperture as the screw of the stop-cock is turned.

† Many subsequent experiments have convinced me that *charcoal* has the property of *vitrifying* the *metals* of the *earths* during their reduction; and that it is better not to make use of it in these experiments.

were brought into contact with the flame; and this *slag* after being filed, *disclosed* a brighter surface of *metal* than any that I had yet seen. I can only compare it as to colour and lustre to the purest *silver*, and it seemed to be equally ductile. In the space of three minutes, however, it became oxided, but the *metallic* lustre was again renewed by the application of the file, until at last the whole of the *metal* was filed off, and a dull slag which was not metallic remained, with a degree of lustre resembling the appearance of horn. The nitrous solution whence it had been taken, exhibited, to the *prussiate of potass*, a copious precipitate of a deep *green* colour; but this precipitate may be due to impurities both in the *water* and in the *acid*. The existence however of the *metal* of *barytes* no longer admits of the smallest doubt. As it will be necessary to bestow some name upon it, and as any derivative from Βαρυς would involve an error, if applied to a *metal* whose *specific gravity* is inferior to that of *manganese* or *molybdenum*, I have ventured to propose for it the appellation of PLUTONIUM; because we owe it entirely to the *dominion of fire*. According to *Cicero* there was a *temple* of this name dedicated to the *god of fire*, in *Lydia*.

Afterwards I pursued nearly the same course with *strontian*, and obtained from it repeatedly a *metal*, like that of *barytes*; the *strontian* burning, as usual, with its beautiful purple flame. This metal retained its lustre for many hours, but at last it became *oxided*, and appeared in the *earthy* state again. I have called it *strontium*, as recommended by *Sir H. Davy*, in the account of his experiments for the decomposition of the *earths*.* Afterwards pursuing the same process with regard to *silex*, I obtained in one instance a brilliant bead, of pure white *metal*, which I have called *Silicium*, for the same reason; but this metal I am at present unable to re-produce. Indeed a temporary suspension of my experiments has taken place, in consequence of a circumstance which I shall now mention.

A great deal has been said of the danger attending these experiments: it may concern your readers therefore to know

* See "*Electrochemical Researches on the Decomposition of the Earths*," &c. Read before the Royal Society, June 30, 1808, p. 14.

that during one entire month, in which I have been employed uninterruptedly in experiments with the *blow-pipe*, I have met with no accident. My tube of glass, as represented in the wood-cut by A, was at first three inches in length, and the bore of it was at least $\frac{1}{10}$ of an inch in diameter. During these experiments, the end of the tube was constantly breaking, owing to sudden changes of temperature, until at last I worked daily with a tube only $1\frac{3}{8}$ inch in length. It has been said, indeed, that "*the danger lies in the chance of a retrograde movement of the flame, which may be drawn backwards towards the reservoir, and thus cause it to explode.*" I have seen this *retrograde* movement of the flame, very often; it happens when the current of *gas* is feeble; either when the reservoir is nearly exhausted, or when the current is suppressed in the beginning of an experiment. But then the flame is instantly extinguished by turning the valve; and if it be not thus extinguished, it will be drawn backward only about half an inch, when, after splitting the end of the glass tube, it goes out of itself. Being resolved however to observe what the effect of actual explosion would be, we condensed about four pints of the explosive mixture into the reservoir, which was all that it was capable of containing, and having tied a long string to the handle of the valve, we took out the glass tube, A, leaving the gas to rush against the flame of a spirit lamp, through an aperture nearly $\frac{1}{8}$ of an inch in diameter. Professor *Cumming* held the string, and opened the valve, standing within about six yards of the apparatus; the rest of us were dispersed towards the extremity of a large room in which the *Chemical* Lectures are delivered. Upon opening the valve, the whole of the gas exploded, with a noise nearly equal to the report of a cannon; and with such violence, as to tear open the copper reservoir, C, one part of which being driven against a wall, was bent double. The stop-cock was also blown out. That danger, therefore, may arise from too large an aperture, is evident; but with the proper precautions an explosion is rendered impossible. I shall continue my experiments with a similar apparatus, and with a much larger reservoir, as soon as it can be prepared.

To conclude, I consider this improvement of the *blow-pipe* as one of the most valuable discoveries for the sciences of

Mineralogy and *Chemistry*, which has yet been made, and I have no doubt but that the use of such an apparatus will become universal. Its portable form, the great ease of conducting the experiments, and the advantages afforded in being able to stop the operation at pleasure, so as to observe all the changes that ensue, and thereby to watch the progress of every analysis that may take place, give it a decided superiority over every contrivance that has hitherto been adopted; and when to all these is also added the wonderful fact, that, by means of an apparatus so diminutive, a degree of heat is produced surpassing that of the most powerful *Galvanic battery*, it will surely be allowed that the inventor of this blow-pipe is entitled in no common degree to the thanks and praises of his contemporaries.

I have the honour to be, &c. &c.

EDWARD DANIEL CLARKE.

Cambridge, Sept. 1, 1816.

P. S. *Sept.* 14. Since the foregoing letter was written, I have renewed my experiments. I no longer find it necessary to use *oil* or *charcoal*, in obtaining the *metals* of the *earths*. The *metal* of *barytes* is obtained directly and almost instantaneously from the *earth* itself. I have estimated the specific gravity of the *metal* of *barytes*, and find it to equal 4.000. But as bubbles of *hydrogen* adhere to the *metal* during the experiment, owing to the decomposition of the water, and as it becomes rapidly oxided and falls to powder, this estimate may be too low. Yesterday I placed some pure *silver* in contact with the *metal* of *barytes*, and fused the two metals together; the result is an *alloy* of a darker hue than *silver*, somewhat resembling granular *tin* or *lead*. By continuance of the heat, the *silver* is dissipated in dense white fumes. If the name which I have proposed for the *metal* of *barytes* be adopted, this *alloy* may be called *plutonial silver*. I afterwards tried a similar experiment with *gold*, but the two metals did not combine. No change was effected in *plutonium*, simply by bringing it into contact with *mercury*. Its action upon *Palladium* is of a very peculiar nature: when placed upon a polished *lamina* of this metal and heated by the ignited gas, it spreads over the surface, in ap-

pearance resembling a *bronze* varnish, and thus forms an alloy with it, until the *palladium* begins to fuse. When fused upon *platinum*, it gives to this metal a superficies resembling polished *brass*. One of the most remarkable results which I have obtained by means of this blow-pipe, is that of IRON, from METEORIC STONES; all of which are reducible without any diminution or increase of weight, to *iron;* admitting the action of the file, and disclosing a bright *metallic* surface, and being highly *magnetic*. This *iron* resembles that which whitesmiths call *iron blubbers* in *clinker;* and it has the same specific gravity; not exceeding 2.666; the metal being nearly in the state of *slag*. Hence it follows, that for the fall of *iron* from the atmosphere, nothing more is requisite than that the *stony concretions* which form in the atmosphere should undergo a greater degree of heat, than that which has attended their deposition when they descend in the form of *stones*. I exposed this day, *eight* grains of one of the *meteoric stones* that fell at *L'Aigle* in *Normandy*, to the action of the ignited gas; it became speedily fused, and exhibited a black *slag;* by continuance of the heat, this *slag* began to boil, and was reduced to a bead of *iron*, weighing exactly *eight* grains. The further consequences of this remarkable fact, I must for the present leave to the reflections of your readers. If the heat be too long continued a combustion of the *iron* ensues, attended with the usual phenomena.

Some Remarks on the Arts of India, with Miscellaneous Observations on various subjects. By H. SCOTT, M. D.

[From the Journal of Science and the Arts, No. III.]

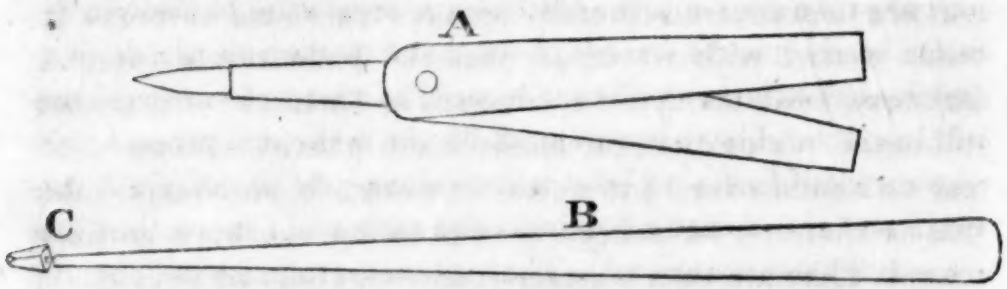
I HAVE hesitated a good deal with regard to the subject which I should choose for this paper, from the great variety that present themselves to my mind. I have fixed at last, on the most important operation for the cure of blindness that has yet been practised in any country—the removal of the crystalline lens when it becomes opake. At what period this dis-

covery was made in India will, I fear, never be known, nor to what demigod we are indebted for so great a relief to suffering humanity. It is probably very ancient; for ages have, I think, passed away since much addition has been made to knowledge in India. It cannot be supposed that a people so often invaded by barbarians, so often subjected to a foreign and cruel dominion, should have leisure or ability to make and preserve observations of this kind. But whatever may be the origin or antiquity of the operation of India for cataract, I know that it is occasionally very effectual. That it renews to many melancholy beings their long lost communication with the external world, and brings them once more "within the precincts of the cheerful day."

I cannot venture to say that the Indian operation for the cataract is worthy of our imitation; this must be decided by those better qualified to judge than I can pretend to be. I shall confine myself to a plain narration of what I have actually seen, with such observations on it as have arisen in my mind. I think I have been a witness of this operation four times, and performed by two different operators. Those people occasionally travel to a distance to practise their art, but I believe they never leave their homes unless on being called to some certain employment. All those that I saw in Bombay, were Moormen, and their general residence was in Guzurat. One of these practitioners was a young man, the other aged; they came at different times, and were unconnected with each other. The young man had, I think, the most skilful hands of any person that I ever met with. He seemed to feel every thing that he touched with as much delicacy as a spider, and the operations which I saw him perform were executed with surprising skill. Celsus observes that a surgeon ought to be a young man, or of an age approaching to youth. "Esse autem Chirurgus debet adolescens, aut certæ adolescentiæ proprior." The feeling, the elasticity, the pliability of youth, with its perfection of sight, are never more necessary than in the operation for the cataract.

I have, unfortunately, not brought to Europe the Indian instruments for couching, but I have had a set made here by an ingenious workman, from my recollection of them. They can-

not be far from affording a true representation. The first instrument, A, is for perforating the coats of the eye. It is sharp-



pointed, but soon becomes thicker than a common lancet. This seems to be necessary, for two reasons: 1st, to avoid the risk of its breaking, from the thickness and density of the sclerotic coat; and, 2dly, to make an opening of sufficient size to pass the instrument B, for depressing the lens. The instrument A is made of steel, but B, I have always seen made of brass. About the 4th or 5th of an inch above the point of the instrument A, they wind a thread for preventing its passing farther into the eye than is intended. It is a curious circumstance, that the opening made through the sclerotic coat is at the very point where it is now made in Europe; that is, behind the edge of the cornea, and about, or a little below, the axis of the eye. My skilful operator desired the patient to look at a particular object, and in a moment he pierced the eye at the very point which he ought to have done, and without using a speculum to fix it.

When an opening is thus made through the sclerotic coat, the instrument A is withdrawn, and that marked B, introduced. This instrument may be described as a cylinder, terminating at one end in a pyramid of three sides, with a blunt apex. Between the cylinder and pyramid, at their junction, is a neck, or part somewhat smaller than the rest, as marked at C. On being inserted, it is so managed as to push down the lens below the pupil. This is done slowly, but effectually, twice or thrice, the operator looking attentively for a little time afterwards at the eye, to be convinced that he has quite removed the lens, and placed it below the transparent cornea. He then slowly draws back the instrument till he finds that it

hangs from the narrower portion, or shoulder, at C. In this position it produces no kind of irritation, while the strength of the sclerotic coat keeps it from falling out entirely. Both eyes are then covered carefully with several round cushions of cotton wetted with water, so that the patient is in perfect darkness. With the eyes so covered, and with the instrument still in the perforation, the head of the patient is allowed to rest on a pillow for 15 minutes, or even half an hour, till the spasms that may have been excited in the eye have entirely ceased. They are then uncovered and carefully examined. If the lens or any part of it has risen, it is again depressed by the instrument B. They are a second time bound up as before, for a like period of time, and then re-examined, to ascertain if any farther depression is necessary. This process is even gone through a third time, so that their operation is tedious: it requires a long time, but it seems not to give any material degree of pain or uneasiness. When in this way they are quite satisfied that the lens is sufficiently removed, they tie the wet cotton cushions over both eyes, and put the patient to bed. He is kept there in darkness and repose for about a week, living on little else than boiled rice.

When I first saw the Indian instruments for couching, I looked on them with contempt. I thought the instrument B, in particular, clumsy and ill fitted for its office. But experience has altered my opinion. Its size is perhaps of advantage, for by means of it the lens is readily removed, while its coat is completely torn and detached. There is thus less risk of the lens returning to its former position, while its absorption is promoted and ensured.*

If any person will consult Celsus, he will find that his operation for the cataract does not differ from the present practice of Europe, and no doubt gave rise to it. He perforates the eye with the same needle (acus) that he uses for depressing the lens; and he advises, if the lens cannot be kept down, to cut it to pieces with this acus; so that his instrument must have had both a sharp point and a cutting edge: "si hæsit

* Celsus seems to be of this opinion—for he says "tum acus admovenda est, aut acuta, aut forte *non nimium tenuis*."

(says Celsus) curatio expleta est, si subinde redit, eadem acu concidenda et in plures partes dissipanda est; quæ singulæ et facilius conduntur et minus late officiunt."

There is sufficient evidence that the astronomy and the Algebra of the Hindoos had a different origin from what we have learned of those sciences from the Greeks or Egyptians. May not the same observation be applied to the subject of this paper? From whatever source the operation of Celsus reached the Greeks, and through them, I suppose, the Romans, it differs so much from the method of India, as may lead us to think that they had not a common origin. Facts like those would lead me to suppose that there never existed more than a very partial or a very temporary intercourse (such as now takes place) between India, Egypt, and Greece. The recent introduction into Europe of the Arabic cyphers or digits affords, I think, a proof of the same kind. It has been supposed that a knowledge of them was first brought from Spain to France before the year A. D. 1000, by the justly celebrated Gerbert, and that he had learned the use of those figures from the Saracens, who had settled in that country. The introduction, however, of this method was probably much later than the time of Gerbert. Mathew Paris calls them the Grecian numerals, and says they were brought from Athens by John Basingstoke, about the year 1240. I have no doubt but that we owe to India, and not to Greece or Arabia, this inestimable invention. The forms of those Arabian or Grecian characters are nearly the same with those we use at present, and the whole mode of employing them for the expression and management of numbers is exactly the same. How superior is this to the numeral letters of the Romans!—Does not our comparatively late knowledge of this noble invention afford an additional proof that the extensive connection between India, Egypt, and the more Western world (which has been supposed to have existed) could never have taken place? Such an argument appears to me far more conclusive than the sounds of words, uncertain etymologies, or geographical conjectures. The wanderings in the East of shepherds or of tribes in the early periods of society, with regard to which so much has been said, may be ranked with the stories of the Arabian

Nights, and are in my opinion about as authentic and useful.

I asked my Indian operator by what means he had acquired his knowledge of this operation. He replied, from his father. They practised it from father to son. He had never seen the dissection of the eye of any animal, nor does he believe that any of his family had. In spite of all this, it is impossible not to think that the knowledge of this very delicate operation must have been derived from actual dissection; for an error, even of a small space, would inevitably lead to a destruction of vision for ever.

I was so struck with the skill of this man, that I was very anxious to ascertain from him the general result of his practice, the proportion of his successful and unsuccessful operations. He acknowledged at once that he kept no register nor account of them; but on my pressing him much to make some conjecture of the number in one hundred who were improved by the operation, and of the number who received no benefit from it, he said, after a good deal of hesitation, that he did not think above five in one hundred remained without benefit. I had no means of ascertaining the real state of the question with more certainty; the man was a stranger and soon returned to his country, and I never saw him again. I leave it to the reader to form his own conclusions on this subject. He could have but little interest in deceiving me; but, as is too frequently the case, he might wish to give himself consequence by magnifying his success; he might have forgotten many of his failures; and without supposing that he meant to mislead me (which I should reluctantly do), we ought probably to make a large deduction from the favourable side of the account.

I shall say nothing of the remedies used by the Indians for inflammations of the eyes, for that is a subject purely medical, for which this is not an appropriate place; nor indeed do any of their remedies produce such effects, as I should judge to be peculiar, or very interesting. So far as my own experience goes, I am disposed to think that the ophthalmia of Egypt, like the plague of the Levant, or the typhus fever of Europe, cannot be propagated from one man to another in India, but that its infection or contagion is rendered inert by the unceas-

ing heat of that climate. I can suppose that an increase of temperature may induce those poisons to enter into new combinations with the air, or some of its component parts.

H. Scott.

38, *Russel Square*, *August* 2d, 1816.

P. S. Does any thing like the operation that I have described appear in the medical writings of the Arabians?

Account of the Winter Epidemic of 1815-16, *as it appeared in and adjacent to Columbia, S. C.* By Dr. James Davis. Pamphlet; printed at Columbia, S. C. 1816.

The late pestilential epidemic catarrh, which has occasioned a greater mortality than Carolina ever before experienced from any other epidemic, commenced in the town of Columbia early in last November, in the form of common colds, immediately after the disappearance of our autumnal bilious fever. These colds were unusually rife for that season of the year, and the symptoms of them were coughs with some rawness and soreness of the pipes and chest, and occasionally slight soreness of the throat with some fever.—The head was never affected. Although this disease now assumed this mild appearance, it was easy to discover from the sallow complexion and languid condition in which it left the patients even after slight attacks, that there was more malignity in it than in a common cold. The successful method of treatment also pointed out a difference between them, as, after cleansing the first passages freely with cathartics, a liberal use of the bark proved a speedy and certain method of cure; which would not have been the case in common colds. In many instances the degree of morbid affection was so slight as not to require the aid of medicine; and in these cases their duration was from one to three, four or five weeks, according to the employments and habits of the subjects of them, in remaining within doors, or in being much exposed to alternate changes of the external atmosphere with the attemperated air of a chamber.

By the latter end of November and the beginning of December, these colds began to wear a more serious complexion; the worst cases assuming the type of violent pneumonia, while the more ordinary cases began to be accompanied with severe fevers and local affections of the parts about the head. By the middle and third week in December the disease had become truly alarming.—Several mortal cases had occurred, accompanied with symptoms of malignity, and the subjects of it were multiplying every day. By the middle of January it may be said to have reached its acme, and by the second week in February to have nearly subsided. It however is not yet entirely passed off, for upon the recurrence of every damp cold day or two a few severe cases immediately appear; and a slight sore throat, which is at this time unusually rife, must be considered as a modification of the same disease. During these ten or twelve weeks of its prevalence it manifested considerable malignity, and left but too many to painfully remember the winter of 1815-16; nevertheless I apprehend its violence and mortality have been greatly exaggerated. Its mortality was considerable, it is true, but there can be no doubt, from authentic information, that several other places, as Williamsburgh, Newberry, and the vicinity of Cambridge, have suffered incomparably worse than we have done. I do not mention this circumstance because it is any consolation that other places have suffered more than Columbia, but to remove improper impressions with regard to this place; for in this respect it has been egregiously misrepresented.

Every serious case of this epidemic was ushered in by a chill, with an unusual aching of the joints and extremities of about two or more hours duration. A few hours before this chill, in very many cases, sudden, acute and excruciating local pains in some part of the body, but especially about the face and head, as in one tooth, one ear, the orbitary bones of one eye, one side of the maxillary bones, one side of the head, the bones of the nose, or perhaps still more remotely, a pain in one knee would appear, whilst the subject was in perfect health, as precursors and premonitors of the approaching disease. The circumstance of a formal chill at the commencement afforded a certain prognosis of the nature of the future disease,

whether it was to be a light or a severe one. Not a single case of a severe nature occurred without this symptom, and not one which was marked with it, that did not prove exceedingly violent. The measure of severity and danger might also be predicted with considerable certainty from the severity and length of the chill, as the violence of the disease was generally correspondent to the severity of this symptom.

A fever immediately succeeded the cold stage, and perhaps in nineteen cases out of twenty, within the first twenty-four hours, a pain began to form in some part of the thorax, attended with cough, constituting pneumonia. This pain continued to increase in violence, spreading and occupying a more extensive portion of the chest, until in some instances it seemed to have pervaded the whole region of the thorax, or shifting from one part to another, for nine, ten or eleven days, when a crisis occurred either by expectoration, perspiration or urinary depositions, or by all three of them, and the disease gradually solved.

In pneumonic cases the pulse was seldom hard, but was very quick and manifested great irritation. The warmth of the skin was not very ardent, but until near the crisis was generally disposed to be dry. About the third day and sometimes on the first, the tongue became covered with a yellow fur. The thirst was not generally considerable, but short paroxysms of it occurred in which it was excessive. There was seldom much pain in the head, and yet there was almost constantly present a slight alienation of mind. There was some expectoration from the beginning of the cough; at first it was commonly a little bloody, but frequently only a tough glairy phlegm. The urine during the disease was a little diminished in quantity and of a high red colour. Muscular strength was considerably prostrated and the patients suffered much anxiety. The sleep was greatly disturbed. The respiration was hurried and frequently performed with a little catch, as if from some obstruction, even when the pain in the chest did not appear to be very acute; but it seldom amounted to dyspnœa, except in fatal cases, and then, for a few hours just before death, it was excessively severe, suggesting an idea that the chemical function of the lungs was suspended, rather than that they were

rendered impervious from infarction or mechanical obstruction. The cheeks were often marked with a circular blush which in some cases was of a remarkably deep crimson colour. Upon the whole, however, the apparent difference of symptoms between these cases and ordinary cases of sporadic pneumonia was not very striking. The difference chiefly consisted in the greater danger attending the epidemic cases, and the unsuccessful result of the remedies usually employed in sporadic pneumonia.

Towards the ninth, tenth or eleventh day the expectoration became more easy and copious, the matter of which was generally yellow.—Spontaneous and comfortable perspirations burst forth. The urine became more abundant and turbid, deposited a copious mucous sediment, and the disease gradually terminated.

This was the train of symptoms that appeared in the generality of pneumonic cases; but not in all. There were some in which the arterial actions were prodigiously energetic, and in which there was scarcely any reaction in the blood-vessels, exhibiting every mark of the greatest debility compatible with life. These latter cases were more embarrassing to the physician than the former, but nevertheless did not prove to be more mortal. They ran the same course, had similar crises, and terminated about the same time with the kind of cases above described.

Besides the pneumonic form of this epidemic, which was here the predominant form and occasioned nearly all the mortality in this community, we also had three other types of it. The pneumonic form in all serious cases was so greatly predominant, that perhaps we should not depart very far from propriety to denominate the disease an epidemic pleurisy or peripneumony, rather than that of an epidemic cartarrh. The next most prevalent form exhibited a determination of disease upon the brain and meninges with violent pain in the head, suffused countenance, redness of the eyes and delirium. In another, the disease fixed on the blood-vessels only, in the form of violent fever; and in the third, but in very few instances, there was a local determination to the throat producing cynanche pharyngæa. The difference of symptoms between

these types and the pneumonic type chiefly consisted in the usual symptoms arising from the parts locally and most violently affected; except perhaps that the vascular actions were generally more energetic in the former than the latter; and that cough did not attend on the former so early in the attack as it did in the latter. In the head, fever and throat cases, the cough supervened, and about the ninth, tenth or eleventh day an expectoration of yellow matter came on together with spontaneous perspirations and urinary depositions—and the disease gradually solved. It is here worthy of remark that whatever type the disease assumed the symptoms attending the crisis were the same; and perhaps there is no disease in which these symptoms are more uniform and essential than they were in this.—These kinds of evacuations appeared to be those which the nature of the disease pertinaciously required for its solution, and it appeared that none others either natural or artificial could be successfully substituted for them. Not a single case recovered, so far as I am informed, without one or more of these evacuations, however long the period of crisis might have been deferred.

In the cure of this disease, as I above remarked, in its first approaches, the cases were readily managed with purgatives, and the subsequent use of the bark; but when it arrived to its full strength the bark was no longer admissible except in the state of convalescence. During its whole reign, however, it exhibited various degrees of morbid affection, and very many cases occurred in which it was only necessary to recommend confinement to the uniform atmosphere of a chamber, a spare diet with perhaps some gentle tonic medicines, as the infusion of quassia or the bark.

In treating the pneumonic cases, it was readily to be perceived, that bleeding, our chief remedy and principal dependance in sporadic pneumonia, was not the leading remedy in this disease. For although it was frequently useful and sometimes absolutely necessary to have recourse to it, yet the benefit derived from it even in these cases, and where there was considerable inflammatory diathesis with violent local affection of the chest, was not equal to my expectations, nor to what I had been accustomed to obtain in sporadic pneumonia. This

disease was decidedly of a bilious character, modified by the influence of the cold season into the form of catarrh. In some cases a redundancy of bile was manifested by the immense discharges of it by evacuants, and in others where it did not appear to be so abundant, yet we have reason to believe from the acrimony of the discharges and from its appearance that a vitiated state of it was the cause of the disease. In many cases towards the decline the complexion assumed the bilious hue, and in some a true jaundice supervened in the midst of the attack.

The remedies most uniformly useful, and which ought to be considered as the chief and leading remedies, were *cathartics*, *diaphoretics*, *anodynes* and *epispastics*. In cases of very energetic arterial action venesection was absolutely necessary; and in cases of less vascular energy, when the local inflammation in the chest was fixed and extremely acute, small bloodlettings were useful and even essentially necessary to save the lungs from immediate destruction. But in general it was requisite to be extremely guarded in this operation, and to take away no more blood than was absolutely necessary to rescue some vital part from immediate mischief. In cases of very strong arterial action, or of excruciating pains of the chest, it was necessary to abstract blood until these symptoms were moderated and reduced down to that point which a skilful judgment could determine no longer threatened immediate destruction. But more than this evidently did mischief, either by protracting the crisis far beyond the natural period, or by suppressing the critical evacuations altogether; and by leaving the patients to struggle under a tedious debility during a long protracted convalescence.

The blood was most generally buffy in every stage of the disease in which it was drawn; but frequently not until the third, fourth or fifth day. The buff was commonly of a yellow colour; and in some instances the coagulum was imperfectly formed, being of exceedingly loose texture with a liquid kind of buff floating over it, exhibiting almost a semipurulent appearance.

Neither the buffy appearance of the blood nor the obstinacy and unmitigated state of pain, afforded those just criteria for

repeated venesections, as in sporadic pneumonia. It was necessary that the physician should not be over anxious to subdue these symptoms to that point of moderation which he was accustomed to do in common pleurisies, but to wait the critical termination; trusting the resolution of a much higher degree of remaining local inflamation to the evacuations of expectoration, &c. attending the crisis, than would be justifiable in sporadic pneumonia.

Refrigerant cathartics, such as the sulphat of soda and the sulphat of potash, were the most useful; and it was necessary to repeat them every day or every other day during the disease; and to employ the intervals with diaphoretics and anodynes. The most servicable diaphoretics were the pulv. antimonial. or the James' powders, and powders composed of tart. emet. and sal. nitri. The anodynes, either the elixir paregoric or laudanum, were best given at night, to compose the irritation and to co-operate with habit in inducing a comfortable sleep. It would be natural to fear that the anodynes might have an effect in repressing expectoration; but so far from it, they usually repressed only a harassing fruitless cough during the night, but promoted the expectoration when the cough returned in the morning. It was proper however, not to resort to this remedy too early, nor until after the morbid excitement had been somewhat reduced; and if in the course of the disease the morbid excitement suddenly increased, it might be proper to intermit its use. It is unnecessary to add that the anodyne ought always to be so given as not to interfere with cathartics.

This was the general mode of treatment which I found most successful in every type of this epidemic. The difference of type requiring no other difference of treatment than some local applications suited to the parts most violently affected, except in the cases attended with extreme debility, where it was necessary to have recourse to some diffusible stimulus and cordial. The warm aromated toddy, as being most grateful and convenient, was generally resorted to.

In chest-cases, epispastics on the seat of the pain, especially if fixed, were beneficial. In cases of the cynanche, when not violent, the volatile liniment combined with a solution of cam-

phor in Sp. Terebinth. was very serviceable, but in violent cases epispastics to the throat were indispensably necessary. Such gargles as best promoted a secretion from the fauces were useful, and for this purpose the simple forms, as warm sage tea with honey and sal nitri, were perhaps as good as any others. In head cases epispastics, when applied to the back of the neck, were strikingly beneficial; and I was informed of one case which approximated nearly to phrenitis in which an epispastic over the whole of the shaved scalp, afforded immediate relief. In mere fever cases blistering was most usefully performed on the extremities.

Soon after the solution of this disease the appetite of hunger frequently returned very suddenly, and was remarkably ungovernable; in these cases it was necessary to restrain the patient in the quantity of his food, but his appetite craved a generous diet, and it was useful to indulge it; a poor meagre diet only served to keep up a state of debility and langour but too common after this disease, and to protract the convalescence.

I have faithfully endeavoured to comprise in this communication an accurate history of the rise and progress, type, symptoms and cure of this epidemic. I am happy to be able to add that Doctor E. D. Smith, professor of Chemistry in the South-Carolina College, who during my own illness with the disease, was necessarily drawn into the practice for several weeks from the scarcity of medical aid, and to whom I showed this communication, confirms the statements I have made as accordant with his own observation and experience. And as, from authentic reports, this disease has assumed very various shapes in a great number of places, it is much to be desired that similar communications could be obtained from every place in which it has appeared. The History of Epidemics is at all times interesting to the physician and the philosopher; and yet no diseases are involved in greater obscurity. In the profession of physic, where the practitioners are considered as the guardians of health, the community at large have a claim upon their exertions; hence moral duty should stimulate them to every information that may tend to general good. It is beneath the dignity of a physician to consider himself the object of his own attention; he should deal out his bounty

with a liberal hand, and let his observations and experience be diffusive.

PART II.

Peculiarities and Anomalies of the late Epidemic.

This subject would appear at first view to be more curious than useful; but when it is considered how far the peculiarities and anomalies concomitant on a disease may tend to establish the identity of its character, it will be found not to be destitute of utility. It may also be of importance to the practitioner, upon any new recurrence of the disease, to be apprised of its anomalies and the consequences to which they lead, and thereby be saved from those perplexing embarrassments which new and singular appearances sometimes impose upon him.

It has been the practice of medical writers to denominate all catarrhs which have prevailed epidemically by one common appellation implying an identity of character. "From Sydenham upwards to Hippocrates, the epidemic catarrh was known and is mentioned by the name of catarrhalis febris epidemica. Since Sydenham's time it had been variously named, but is now generally known by the name of influenza." How far this may be correct and proper requires investigation.

In examining the history of epidemic catarrhs we find a very great diversity both in the symptoms and in the methods of cure; scarcely any two of them in immediate succession presenting a sameness of character. If nosological terms are to be continued in use, it is important that they should be applied with the utmost discrimination and strictest precision; otherwise unwary practitioners and others, seeing a method of treatment prescribed for a disease under the usual name by which it is known, will take it for their guide, right or wrong, and perhaps not discover their error until after the loss of several valuable lives. A great source of this want of precision in former times was doubtless the seldom recurrence of these epidemics, as according to Dr. Fothergill, they had appeared at uncertain intervals in England during the two hundred and fifty years last preceding the year 1764, on an average of only once in thirty one-years; but unfortunately for us in modern times this excuse does not apply, for since the year 1768, they

have returned in England upon an average of once in only about every six years, and in this country since the year 1757 the average has been once in only about every seven years. It prevailed in America in the years 1757, '61, '72, '81, '89, '90, 1807 and '16, so that in this ratio it may return under the observation of one man, during an ordinary lifetime, six or eight times, which affords but too ample an opportunity to industry and attentive remark to make accurate observations and useful distinctions.

Dr. Rush remarks that "the influenza passes with the utmost rapidity through a country, and affects the greatest number of people, in a given time, of any disease in the world;" in which he is corroborated by many other writers. But our late epidemic was peculiarly slow in its progress in pervading the country. In its march from the northward to the southward its progress appears to have been only from about one hundred to two hundred and fifty miles per annum. In the winter of 1813 it was in Philadelphia; in the winter of 1815 it had advanced as far southwardly as Salisbury, N. C. and in this winter it has visited most parts of South-Carolina. Since its invasion of this State, its progress from place to place has been equally peculiar; appearing in spots or neighbourhoods only thirty or forty miles distant from each other, at periods of four, five, six or eight weeks apart. It was also peculiarly capricious in the circumscribed locality of its prevalence, attacking one particular community, raging for eight or ten weeks, and then passing over a large intermediate tract of country and seizing on another circumscribed community. In this way it has been meandering through the State ever since early in last November, and at this time is still raging in some neighbourhoods adjacent to others where it prevailed early in the winter, and from which it had long since passed off.

It has been peculiar in raging with the greatest severity in the interior of the country, whilst the sea coast has been exempted or suffered comparatively but little. And yet in the interior of the state, the most swampy situations, margins of rivers and places most subject to the endemial autumnal bilious fevers, have suffered most severely from the epidemic.

It was likewise peculiar in its manifest predilection for male

subjects in preference to females. The proportion of females attacked did not perhaps exceed one tenth or one fifteenth part; but some few who were attacked seemed to have the disease equally as violent as the males. Children under four or five years of age were remarkably exempted, and amongst children above that age the males most generally suffered. It was not peculiarly fatal to the aged, nor to such as had a prior tendency to pulmonic affections, but on the contrary some very old people recovered who had the disease severely; and, indeed, it fell with its greatest severity and mortality on the robust, and on such as were in the prime of life.—Corpulent persons appeared to enjoy an exemption;—and it was thought that Europeans and the natives of the Eastern States were much more exempted than the natives of more southern latitudes. Females in a state of pregnancy were not more liable to abortion in this disease than in others of equal violence, which unhappily is not the case in epidemical catarrhs generally. To drunkards, as might have been expected, it was generally fatal.

This disease was peculiar in its universal tendency to determine on the chest, in the form of pneumonia. For although a small proportion of cases determined to the head, blood-vessels only, or throat, yet the tendency to the chest was so general as almost to warrant the denomination of an epidemic pleurisy or peripneumony rather than that of influenza. It may also be remarked that relapses were more seldom than in ordinary influenzas. It was peculiarly under the influence of temperature and humidity. Upon the recurrence of cold damp weather, of which we have had an unusual share this winter, the cases immediately multiplied, and those who had been previously ill never failed to become worse. It was perhaps from this circumstance that it proved in many places peculiarly fatal to negroes, as they were more exposed to the vicissitudes of the weather, and their lodgings generally cold and uncomfortable.—Exposure to the external atmosphere and cold seemed constantly to predispose to the disease, and hence, perhaps, is the reason why females, children and corpulent people were more exempted from it than others, as corpulence serves as a defence against the influence of cold.

In two anomalous cases in this town the local determination to the brain was so sudden and violent in two robust men

as to occasion convulsions, without any premonitory symptoms.—Both these cases proved fatal, one within 48 hours and the other within a few days. In a lad of 14 or 15 years of age, the disease was ushered in by a sudden attack of stupor. He was travelling on the road in company with some others and complained of nothing before he fell down in a state of insensibility. This case recovered. A pneumonic case occurred, of a typhus nature, accompanied with a cough in every respect resembling the hooping-cough, except that the matter of expectoration was uncommonly copious and purulent from the beginning. This is a recent case, and after a tedious illness seems likely to recover. In three pneumonic cases towards the period of the crisis the disease precipitated itself upon the extremities, producing an alarming state of phlegmonic inflammation, which terminated the constitutional disease by establishing copious suppurations. In two of these cases it fell upon the arms, and the inflammations and enormous swellings extended from the fingers to the shoulders. The suppurations took place around the elbow in both cases, forming extensive sinuses from which the discharge kept up for many weeks. These are both recovering, but threaten an anchylosis. The other case fell upon the leg, suppurated copiously and is doing well.

I was informed by the physicians of this place of three cases in which hæmorrhages from one or both ears occurred, in which the patients lost from ten to sixteen ounces of blood. One of these cases recovered. Three or four cases occurred in which the eruption of a rash on the 2d or 3d day, put an end to the disease; and in one it appeared as late as the 4th or 5th week, in conjunction with the other usual symptoms attending the crisis, and seemed to be beneficial.

Two pneumonic cases occurred in which uncommon copious bronchial or pulmonary secretions took place at a late stage of the disease, and after the condition of the patients had given hopes, for several days, of convalescence. This secretion occurred suddenly, and the matter of it was expectorated by an exhausting paroxysm of coughing. The quantity expectorated at one time was from about four ounces to two pounds, in the space of from fifteen minutes to two hours. In

one of these cases it recurred periodically with nice precision, at the same hour and almost at the same minute in every twenty-four hours, for four or five times.

The matter of this secretion had an intermediate appearance between pus and mucus, of a white colour with a taste not easily described, but more nearly resembling the taste of a raw egg than any thing else. This secretion was followed by evident and immediate relief to the chest. The respiration became more free, the lungs more easily expanded, the remaining pains and uneasiness about the chest were mitigated, and the convalescence was visibly more rapid.

These discharges gave an impression that they proceeded from the rupture of vomicæ or abscesses which had formed in the lungs. But that this opinion was erroneous is obvious from the following circumstances. The matter was obviously different from the matter of common abscesses, as an experienced eye would readily perceive. If, however, it had been real pus, yet this alone would fall very far short of being proof that it proceeded from an abscess; for it is a fact long since established that pus may be, and very often is formed from inflamed secreting surfaces, and the secreting surfaces of the bronchiæ most especially are liable to take on this kind of secretion. The expectoration of this matter was moreover regularly periodical after certain intervals. It continued at each period about the same length of time, and then gradually, but rather abruptly, ceased; after which not a single particle of it could be expectorated by any effort of coughing, either spontaneous or intentional, until the next regular period of its recurrence. Now it is obvious, that if this matter had proceeded from a ruptured abscess, however rapid and copious the first discharge might have been, yet a supply of more or less matter must have been constantly formed in it until the abscess was healed; and must necessarily have been brought up, from time to time, during the intervals, by coughing. To suppose the contrary, we must believe each discharge to have been the consequence of the rupture of a distinct abscess, and the more especially as each succeeding discharge and even the last, was equally as copious as the first; and then we must admit the preposterous conclusion that each abscess was instantly healed

upon being emptied. A conclusion, unfortunately for the subjects of pulmonary abscesses, contrary to all experience.

Upon the whole I conclude that these discharges were the effect of bronchial and pulmonary secretion; and that it was a mode of evacuation attending the protracted crisis of the disease, by which the lungs were unloaded of infarctions and possibly the whole system relieved of offending matter; for it ought to be remarked, that both these cases had long passed the usual period of termination of the disease without the usual symptoms of expectoration, &c. attending the crisis.

In very many pneumonic cases a pain remained on the seat of the inflammation during the whole time of convalescence. This pain, from the circumstances of its being so suddenly variable, sometimes better and sometimes worse in the course of a few minutes, and seldom giving any uneasiness except by an expansion of the thorax or some exertion of the muscles about the part, was most probably of a rheumatic nature. In one case they seemed to occupy every intercostal muscle, giving considerable pain upon every expansion of the chest, as by deep inspirations, &c. but occasioning little or none of uneasiness when these muscles were relaxed or only in their ordinary state of exertion. Although these pains were evidently seated in the intercostal muscles, yet there was an evident connection between them and the state of the lungs, insomuch that a few coughs and even small expectoration would occasion a mitigation of them for some time.

I have given the principal peculiarities and anomalies that have attracted my attention, and beg leave to close this communication with a notice of some popular notions with regard to the prevention of this formidable disease. I am informed that the inhabitants of Williamsburgh district, where it has made great ravages, believe that the progress of the disease has been completely stopped by burning their woods, and it is said that several circumstances afford considerable grounds for the opinion. I am also informed, that a gentleman in the town of Granby, where the mortality has been almost unparalleled, had an early recourse to burning tar in his yard and about his doors. His family escaped the disease. Another gentleman of Camden, whose negroes were situated on his plan-

tation not far from another where the negroes had experienced uncommon mortality, upon perceiving that the disease had made its appearance in one of his kitchens, had recourse to the same expedient and the disease progressed no farther. In Fairfield district a notion has prevailed, that those who were employed in clearing lands where great quantities of brush and wood have been necessarily burned, have been exempted from the disease. Is it impossible that these notions should have some foundation in truth? The products of the combustion of various kinds of vegetable matter may contain some active and potent agents. It is known to chemists that the combustion of several substances, and especially the resinous wood of pine, produces carburetted hydrogen gas in very great abundance. This gas, from its affinities with some other species of matter, is capable by combinations of totally changing their properties. Is it then impossible that this substance should combine with the latent remote cause of the epidemic in the atmosphere and destroy its virulence? Or is it impossible that carburetted hydrogen gas should so influence the animal system as to destroy its susceptibilities to the impressions of the remote cause? These ideas are altogether hypothetical, but perhaps not too absurd to demand some attention; nor to forbid a further enquiry into the effects of combustion in arresting or destroying this all-devouring monster.

JAMES DAVIS.

Columbia, S. C. April 5, 1816.

Extract of a letter from Dr. J. Trent, to Dr. E. S. Davis, of Abbeville, S. C.

Richmond, March 19, 1816.

Dear Sir—The epidemic of which you speak as raging with unexampled mortality in South Carolina, is most likely of the same kind with that which prevailed here the last winter. (1815.) You request me to give you a history of our epidemic, with the treatment which I found most successful. This cannot be fully done in the compass of a letter, as its aspect was influenced by a variety of circumstances. The disease attacked suddenly (when violent) with a chilliness or ague, excruci-

ating head-ache and pains in the joints, soreness of the throat, hoarseness and oppressed breathing. As soon as the head-ache moderated, the patient generally complained of pain in some part of the chest or abdomen, which was seldom fixed for the first two or three days. With the coming on of these shifting pains of the breast, the cough and respiration became more troublesome and laborious, and was often attended with a rattling or wheezing, which denoted great danger, as it proved the lungs to be threatened with congestion of blood or effusion of lymph, a morbid condition from which they are not easily relieved, and to prevent which our efforts should be promptly and vigorously made. In some the whole force of the disease was spent upon the head, producing a suffocated state of the brain, which carried off the patient in from 24 to 48 hours.—Others had it to fall upon the throat, producing cynanche laryngæa, which suffocated the patient in from 6 to 48 hours.—But the most common form of the disease was a congestion of the lungs, which in a few days ended in suffocation. The only lingering cases were those in which coagulating lymph was effused on the surface of the lungs and the brain, creating an irritation which kept up the fever for two or three weeks; but which were oftener and more easily removed in consequence of the time afforded for a salivation. The treatment of the epidemic was regulated by the type of the fever which attended; which in this place, in a large proportion of the cases, was inflammatory or mixed (synocha or synochus.) I saw not a case of typhus, and yet it was called typhus generally; but was made so by the stimulating practice which occasioned that prostration of the system consequent to a state of indirect debility. This word typhus has occasioned the death of thousands in our country within the last four years, by leading to an erroneous conception and treatment of the prevailing diseases. Practitioners should recollect that the most inflammatory diseases produce the most immediate and overwhelming prostration of strength.—The debility is of the indirect kind, and not typhoid as is generally supposed.

To relieve this debility you must abstract from the oppressed system in that gradual and cautious manner which a

knowledge of the subject or principle of reaction alone can teach.—I pursued the antiphlogistic course of practice throughout the fever. Bloodletting was used at the beginning according to the state of the pulse and the preceding health of the patient. In a majority of cases I did not bleed at all, and yet I bled in this disease more copiously than I had ever done before. From many whose brain or lungs were threatened with congestion, I took, with the most happy effect, from 25 to 50 ounces of blood at once, and sometimes repeated the detraction to nearly the same quantity, being regulated by the reaction of the system. The blood was cupped and sizy. An emetico-cathartic dose was then given and a large blister laid betwixt the shoulders, or around the throat if the disease located itself here. In violent cases I gave of ipecacuanha and calomel each, 20 grs. mixed, or a dose of salts with 3 or 4 grs. of tartarized antimony. This remedy operating well, produced unspeakable relief to the head and throat as well as to the breathing.

After bloodletting, vomiting and purging had been sufficiently used, I prescribed febrifuge powders or pills in which calomel always made a part. If the extremities or surface became cool, which was often the case, sinapisms or blisters were laid to the wrists or ancles, and the skin was bathed with hot spirit of turpentine.—Nothing was omitted to recal action or heat to the surface. This condition of the system was generally attended with a small, accelerated and corded pulse at the beginning. I always bled in it, which gave my patient a good pulse and equalized his excitement. A cold skin and small contracted pulse, were generally treated by potations of warm brandy or wine, which powerfully aided the disease in disorganizing the brain, throat or lungs. After the fever and its alarming attendants, inflammation, congestion and effusion, were removed by the antiphlogistic practice, I prescribed blisters, exercise and a restrictive diet to restore the patient.

I ought to have mentioned when describing the disease that a highly bilious character sometimes attended it. The patient not only throwing off a great deal of vitiated bile, but becoming very yellow. The liver was sometimes the part on

which the disease spent its force. A very frequent form of the disease was that of bilious pleurisy, which required less bleeding and more purging than the other form.

I am respectfully, &c.

JOS. TRENT.

On Cancerous Uterus.

[From the London Medical and Physical Journal, for October, 1816]

In our last number, we expressed a wish of arresting the attention of our readers to the bold operation proposed, and, as far as we can candidly conclude, successfully attempted by Professor Osiander. Our particular intention was, that the disease usually called Cancer Uteri should be properly distinguished from the true Cancer of the Breast; because, for the latter, we are free to acknowledge that we have found the operation so frequently fail as to render us very cautious in recommending it.

It appears, that so long ago as the days of Aretæus, that valuable writer made a distinction between the malignant ulcer of the uterus and true carcinoma.* Among the moderns the distinction was lost, till Mr. Hunter revived it. As this was not done in any of his published works, we shall take the liberty of tracing the progress of the enquiry as far as it has appeared in print. We are the more induced to do this, because the first edition of "Adams on Morbid Poisons" is now rarely met with, and the passage to which we refer, is neither contained in the second edition, nor in his treatise on the Cancerous Breast. The following is the introductory part.

"There is only one other cancer with which I shall detain the reader, which, from its frequency and constant fatality, may well arrest a medical writer in his career. Of all the calamities to which a sex that seems destined to support the

* De causis & sedib. Morb. Diuturn. lib. 2, cap. 11, p. 64. Edit. Lugduni Batav. 1735.

largest share of human misery is obnoxious, the cancerous uterus is the heaviest. This will not, I apprehend, be disputed; whether we consider the situation of the disease, almost any one of its attendant symptoms, or the certainty of a life more wretchedly protracted than by any means that the ingenuity of Indian torments can boast. We are ready enough to call the gout *opprobrium medicorum*, because we know, in most instances, it may be called *opprobrium divitiarum*. But what shall we say of a disease that is every day occurring, and the medical progress of which has hitherto extended no further than to confound it with another, which it only resembles in being painful and incurable; and to apply remedies which have derived their reputation from curing diseases different from either! The latter part of this proposition is, I trust, already proved. If the former rested on my own authority, I might have only ventured to ask, where are the cists, where the fungus, where the increased size, in the most common of all the cases of cancerous uterus. I might ask, do we discover more than a sloughing phagedænic ulcer, with thickened hard lips, which slowly destroys the organ and all the neighbouring parts, till *the kindest of physicians* puts a period to the disease and the patient's sufferings.

"That true carcinoma may attack the uterus as well as any other part, is a position I shall not attempt to deny; but that the above, the most common species of what is called cancerous uterus is improperly confounded with the disease in the the breast, is a remark for which I was first indebted to Mr. Hunter. A writer,* whom he could only know by name, but with whose works every physician practising in London must be well acquainted, takes some pains to correct this error, which existed in his time; and Morgagni describes two cases, in one of which this ulcer had committed its usual ravages on the cervix, in the other it had extended to the neighbouring parts, while the rest of the uterus was sound.†

But neither Hunter, Aretæus, or Morgagni, is any authority for a plain matter of fact, on which any one may satisfy

"* Aretæus, cap. xi.

"† De Causis & Sedibus Morborum, Epist. xlvii. 8, & xxxix. 33.

himself. It must, therefore, depend on the observations of those who have the best opportunities of seeing such appearances. From the general accuracy of Dr. Baillie's descriptions, and from the universality of his enquiries, we might expect a solution of this important difficulty; but his account of the diseases of this important viscus is much too short and confused. If the section of the cancerous uterus does sometimes exhibit an appearance similar to other parts in what is called a scirrhous state, this is neither a necessary nor the most common attendant on the sloughing phagedæna of the cervix and neighbouring parts. I had an opportunity of inspecting in one winter the uteri of four women, who died of the complaint, and none of them exhibited the least appearance of disease a quarter of an inch beyond the ulcer. None of them appeared enlarged, nor was there any 'whitish firm substance, intersected by strong membranous divisions.' In the melancholy collection preserved by Dr. Lowder, few appear enlarged, and of these very few beyond the size that this uncertain viscus often exhibits in a sound state."*

This work was published soon after Dr. Baillie's first edition of "Morbid Anatomy." In all the subsequent editions, Dr. B., with a candour which has distinguished his character through life, altered the passage, and added the following note to his alterations.

"This diseased change I formerly confounded with the scirrhous enlargement of the uterus, considering them as varieties of the same disease, and therefore blending their description together; but, in consequence of the accurate observations of Dr. Adams, in his Essay upon Morbid Poisons, I have thought it proper to separate them."

Mr. Clarke, whose work we noticed in a late Number of our Journal, has renewed the subject with equal judgment and modesty.—See London Medical and Physical Journal, page 337, vol. xxxiii.

Having premised thus much, we conceive we have prepared our readers for one of the boldest operations that has been suggested in this age of chirurgical improvement.

* Adams on Morbid Poisons, first edit. page 177.

"*Observations on the Cure of Cancer of the Womb by Excision.* By F. Bj. Osiander, Professor of Midwifery in the University of Gottingen.*

"Cancer of the womb is one of the most dreadful evils which can afflict the female sex. More frequent in many places than is commonly believed, it commits greater devastations in an insidious but malignant manner, and does more harm than many other diseases,—and has seldom yielded to any external or internal remedies hitherto used.

"The superintendance for many years of the Royal Clinical Hospital of Gottingen having given Professor Osiander frequent opportunities of examining and treating persons suffering under this disease, he, with the active assistance of the young physicians and surgeons who frequented his *clinicum*, employed, in many such cases, all the means, external and internal, which were known or imagined, in order to ascertain by what means, or by what mode of treatment, a stop could be put to the progress of this terrible disease; but he learned from experience the melancholy fact, that little else could be done with it than, in a few cases, to retard its progress, and render the sufferings of the patient more supportable; that is to say the pain, the bleeding, and the bad smell;—to effect a cure seemed absolutely impossible. Long before he attempted any operation with the view of curing this disease, he conceived it might be possible to cure cancer of the womb by excision, in the way that has been long known and practised in the case of cancerous mammæ. The possibility of the success of this operation, he founded on the repeated and well known observation, that the inverted and prolapsed uterus has been sometimes cut off designedly by surgeons, and by midwives through ignorance, and yet the persons survived its excision. A woman still lives in the neighbourhood of Gottingen, from whom, twenty-six years ago, an old ignorant midwife cut, or rather sawed

"* This paper was communicated by John Thomson, M. D. Professor of Military Surgery in the University of Edinburgh, at the request of the author. It was published in the Gottingische gelehrte Anzeigen so long ago as the 13th of August 1808; but, when the subject is important, and the information new, the date of a communication is of no consequence, except as a historical fact.—*Editor*" [of the Edin. Journal.]

off, with a bread knife, the uterus inverted and prolapsed after delivery. The late Professor Wrisberg at that time read the history of this woman before the Royal Society; and it is to be found in this Journal (Götting. gelehrte Anzeigen) for 1787, No. 81, p. 810. It likewise appeared in the eighth volume of the Commentat. Gotting.

"These observations induced Professor Osiander to propose, fifteen years ago, in his lectures on the diseases of women, the bold measure of curing cancer of the uterus by extirpation; and he suggested various methods of doing so; among others, the very same which the late Dr. Struve, one of his former pupils, and physician in Prenzlau, afterwards published as his own invention, in the third number of the sixteenth volume of Hufeland's Journal for Practical Medicine, in the year 1803, and against which Professor Osiander cautioned the public at the time. Professor Osiander, however, found the performance of this operation to be very different from what he had conceived, when, at last, on the 5th of May 1801, an opportunity offered itself to perform it. The patient was a widow, whose situation was indeed as deplorable as could be imagined. The vagina was distended by a carcinomatous fungus of the orifice of the womb, as large as a chil d's head. It was extremely fetid, and bled very violently. The fungus was seized and brought low down in the vagina by means of Smellie's forceps; but, in endeavouring to put a loop round the neck of the womb, the fungus broke off, and the bleeding was terrible. The young physicians and surgeons, and a few experienced physicians who were present, among whom Professor Osiander quotes as a witness Dr. Althof, physician to the Elector of Saxony, advised him to give up the operation, because they believed the woman would not be able to undergo it, after losing so much blood. But the patient herself begged that the operation once begun should be completed, and encouraged the professor to continue it, to the great surprise of all who were present. As there was no longer any of the neck of the womb hanging down in the vagina, by which the uterus could be drawn down, necessity, the mother of many inventions, suggested to Professor Osiander the idea of pulling down the uterus by passing threads through it with a needle, and

securing it in this manner till the operation was finished. Crooked needles were immediately mounted with fine waxed packthread, and carried with great caution to the bottom of the vagina, pushed through it and through the body of the womb, and then brought out through the inner orifice of the uterus; for the neck of the womb and its external mouth were already destroyed by the cancerous fungus. In this way four threads, one from each side, from before, from behind, and from both sides, were brought through, by which the uterus was gently drawn low down into the vagina, and kept fast as soon as it was near the external orifice. Professor Osiander then introduced a strong Pott's bistoury under the fore-finger of the right hand, and cut horizontally through the womb above the scirrhous part, as straight as if it were divided out of the body, where he could see it. The part that was cut off, preserved in spirits of wine, along with many other products of similar operations, was exhibited to the Royal Society. The bleeding for an instant was violent, but was very soon stopt by a sponge saturated with a powder made of equal parts of alum, gum Arabic, and colophony, applied in the vagina. After the bleeding had ceased, sponges dipt in a solution of sacchar. saturni and vinegar, were applied to mitigate the inflammation, and as soon as matter was perceived on the sponge, suppurants were employed. Professor Osiander for this purpose made use of a mixture of the extract of unripe walnut-shells, with honey, and red precipitate, which was introduced on sponges with great caution, so that the anterior part of the vagina was scarcely touched by it. When the discharge is very copious, the quantity of the mixture must be reduced, and the red precipitate omitted; if inconsiderable, its quantity must be increased. The cure of this first operation went on so rapidly by the assistance of tonics, particularly cinchona, internally, that the patient could leave her bed in the third week, and in the fourth walked about, totally recovered.

"The success of this first operation gave Professor Osiander the courage to undertake it again soon afterwards; and he has now performed it nine times, and always with similar success. Even one of those patients, after enjoying good health for three years, came to him to be operated upon a second time,

for the cancer broke out again, and he performed it with the same success as before. He reserves for a future occasion the circumstantial relation of each case, and at present only gives the following result of the observations, which he had so many opportunities of making with regard to this disease, and others which are frequently mistaken for it.

"The scirrhus and cancer of the womb begin almost always on the external orifice of the uterus, and proceed from thence to its body; and often before the disease has destroyed half of the womb, death puts an end to the agonies of the sufferer. In rare cases, an ulcer is formed in the bottom of the womb, which degenerates into a cancer that admits of no cure. But, in the first case, a perfect cure may be obtained by cutting out in time the scirrhous and cancerous portions. When the cancer spreads from the orifice of the womb down into the vagina, which it very often does, no cure is to be expected from excision.

"True scirrhus and cancer are, however, very often mistaken for other diseases.

"First, for the benignant swelling and thickening of the womb, which often happens after abortions, miscarriage, or difficult natural labours. The neck of the womb and its orifice swell to twice their natural thickness. The weight and pressure of the whole womb becomes disagreeable to the woman, and causes a sensation as if it would fall out of the body. This swelling is caused by accumulation of blood in and about the womb, from *plethora localis;* and being for the most part joined with hæmorrhoidal symptoms, and indeed oftener with hæmorrhoids in the vagina, physicians and others, even accoucheurs skilled in investigation, are frequently misled, and conceive it to be a bleeding cancer of the womb. This swelling(ἐξόγκωσις) and thickening (σκλήρωμα) of the womb may remain during life without becoming malignant, when no other cause comes into operation. It may be cured by remedies which take away the *plethora localis;* but it may also degenerate into a true scirrhus and cancer, when local irritation or morbid matter, *e. g.* a chronic exanthema, repelled from the skin to the womb, supports and augments the swelling.

"Professor Osiander had repeated opportunities of treating

such cases, which, as well as their causes, are frequently misunderstood. In some instances, a round hard pessary, introduced with force, so squeezed and pressed the neck of the womb, as to cause an obstinate scleroma, which could only be cured by an operation. In one case, cancer of the womb, lameness of the lower extremities, and miserable death, were the consequences of a pessary forgotten in the vagina, and pressing on the mouth of the womb.

"Another cause of scleroma, and several symptoms resembling cancer of the womb, which is often misunderstood, is the incarceration of a retroverted unimpregnated womb. The fold behind the womb is in many women of such a form, that it is very narrow above, and wide below, nay, even sometimes divided into two parts by a perpendicular partition. After labour, and by hard straining to have a stool, the bottom of the womb is sometimes pressed backwards and downwards into this fold, and cannot recover itself again; the womb begins to swell, and causes a great pressure on the anus, irritation on the bladder, and violent hæmorrhoidal symptoms. Professor Osiander met with four cases of this kind, three of which he treated with success, instructed by the first.

"In the first case, a widow complained of constant hæmorrhoidal symptoms, a disagreeable pressure on the anus, and frequent faintings. The seat of pain was not examined, but external and internal remedies for the hæmorrhoids were administered. She was suddenly attacked by nervous fever, and died. On opening the body, the unimpregnated womb was found retroverted, and adhering to the bottom of the fold. Behind this a wide spreading ulcer was discovered, with traces of inflammation on the intestines and spleen. The ovaria were indurated.

"In a second case, after abortion, the hæmorrhoidal symptoms continued a long time, and caused excruciating pain, and most obstinate costiveness. On examination, the womb was found retroverted and incarcerated, with a sarcoma on its outer and anterior side, of the size of a very large chesnut. As it was impossible to bring it back by the common taxis with the point of the finger, Professor Osiander contrived a peculiar manner of operating, which, in this, as well as in the

two following cases, gave speedy relief. He introduced his dilator from above to the bottom of the retroverted uterus, and turned the instrument round at once. By this method the bottom of the womb started up suddenly. In another case, the womb, together with a polypus as big as a pear, had been retroverted upwards of a year, and had caused effects like those of pregnancy, hæmorrhoidal affections, and symptoms resembling cancer. Professor Osiander recognized the disease at the first examination; raised up the womb as in the former case; and, after a few days, he dilated the uterus with the same instruments, and cut the polypus out by the root, with crooked-bladed scissars of his own invention, which he is in the habit of doing with all polypi, for he never either ties or tears them out. In the last case, the womb was retroverted for some years, and had caused the severest hæmorrhoidal affections, as well as difficulty in passing urine, and going to stool. These symptoms were aggravated by the many warm injections that were applied *in ano* and *in vagina*, the affection being mistaken by the physicians for a cancer of the womb. But Professor Osiander, on the first examination, discovered the real nature of the disease, and, by the skilful application of his dilator soon put an end to the long existing cause.

"Secondly, Cancer of the womb is often confounded with ulcerated polypus of the womb discharging fetid ichor, and with sarcoma of the uterus. These constitute a peculiar, and not very uncommon disease of the female sex, generally misunderstood, and frequently left as incurable; but Professor Osiander, for some years past, has cut out and cured many, after a peculiar and successful method of his own, and his method of treatment, and his observations on it, will be laid before the public on some future occasion.

"The causes of cancer of the womb are manifold. One very common cause, besides mechanical injury of the external orifice of the womb, is syphilis, obvious or latent, or a scrofulous, herpetic, atrabilious and gouty disposition. Besides, all eruptions of the skin fall readily on the private parts of women, in consequence of a continual local irritation, and cause fluor albus of various kinds, which sometimes precedes cancer of the womb, and sometimes accompanies it.

"Among the internal remedies used in the cure of cancer of the womb, along with the operation, Professor Osiander found none so powerful as mercurials with antimonials, and the free use of diuretic drinks. He has not hitherto ventured to make trial of arsenic, although he believes, that, in doubtful cases, it might be cautiously used; but he has not as yet met with a proper opportunity, which occurs oftener in hospitals than in private practice. Professor Osiander admits only now and then into the lying-in-hospital, of which he is the director, a patient afflicted with cancer of the womb, where there is some hope of her being cured; and last year, he again relieved such a patient from her long sufferings, by operating upon her in the presence of many of his pupils. He never made a secret of his manner of operating, although he has been publicly upbraided for having done so; nay, never was such an operation undertaken without stangers as witnesses. He has taught it every year in his lectures, and often performed it publicly before his pupils. He communicated it to every physician in his own country or abroad, who wrote or spoke to him on the subject. Last year he sent an account of the operation to Mr. Maunoir, senior, of Geneva, in a letter, written in the Latin tongue, which Mr. Maunoir communicated to Mr. Martin, surgeon to the hospital in Lyons, and to the medical faculty of Montpellier. This letter, along with Mr. Maunoir's theory of cancer, was printed in the Annals of the Medical Society of Montpellier. Even very lately Professor Osiander performed the operation in Switzerland, in the presence of three skilful physicians and surgeons. What may be its ultimate success is not yet (1808) known, but hitherto the accounts are very favourable.

"Professor Osiander has two methods of operating for cancer of the womb:

"First, in the manner already described. The patient must be placed on a high labour-stool, or on a table, in the position for the operation for the stone, or for delivery, and held fast. The private parts are cleaned out by injections, and softened with an ointment. The fungus is taken away with the finger, or with an instrument. If the bleeding is great, it will be stopped by applying a sponge dipped in vinegar with astringent

powder; if not, the operation is immediately continued. For piercing the uterus, Professor Osiander uses small crooked needles made of soft steel, so that their points can be easily bent. Hard tempered needles are in danger of being broken, and if the broken points be not found, they might do the greatest harm. The greatest difficulty is, to bring the needles through the uterus, till by practice the necessary dexterity is acquired; but the length to which this can be carried, the following circumstance will show. Last year, in the lying-in-hospital here, it happened, in a public operation, that the threads were drawn out of the needles, after they had been pushed through the uterus. Professor Osiander left the needles in the uterus, and threaded them again within the vagina, without requiring the assistance of a contrivance for throwing in light. The operator can and must, in such a case, acquire by practice the same precision and dexterity which many blind people have, as he must act as a blind man. A needle-holder is used merely to introduce the needles; the pushing of them through, as well as all the rest of the operation, must be performed by the fingers alone. The direction of the stitches is from behind forwards, also from before backwards, and from the sides to the centre. The greatest caution is necessary, that the needles do not go too far, and catch upon the vagina, or puncture one of the arteries, or the great veins behind the coat of the vagina. To prevent this, the operator must sacrifice his fingers; and the point of the needle, when through, must be bent immediately with the point of the finger, and seized, and drawn through with a pair of forceps. This cannot be done without pricking the fingers; and it might have been thought that the fingers could not escape being dangerously infected, having to work so long afterwards in the morbid ichor. Professor Osiander, however, was never infected; for, immediately after the operation, he always washes his hands repeatedly with soap, and then washes out the pricked wounds with diluted sal volatile, and last of all sucks them out, without applying any suppurants to the wounds. After five or six days, the wounds healed without any inconvenience.

"A waxed thread four times doubled must be drawn through each needle; very often two of these will suffice to

draw down the uterus into the vagina; at other times, four are required.

"Many physicians have an erroneous idea of this operation; they believe that the uterus must be drawn out before the body, that is to say, must be brought out entirely. It is equally erroneous to suppose that it is intended that the whole uterus should be cut out, and for this reason the operation for cancer of the womb is denied by some or rejected as impossible.

"By the threads the whole womb is only fixed in the bottom of the vagina to be cut off, but the drawing of it down is sometimes rendered difficult, from an adhesion of the external mouth of the womb to the omentum. Upon a late occasion, from this cause, the uterus could not be drawn by the threads, and the threads were accidentally cut in introducing the bistoury. Professor Osiander took a pair of lithotomy forceps, laid hold of the orifice of the womb with them, and cut the cervix off.

"The cancerous and scirrhous portion is to be cut off only as far as the healthy substance, which is known by feeling the smooth surface, and elastic firmness of the latter, which are very different from the rough and woody-like scirrhus.

"The crooked bistoury must be small, strong, and sharp, and rounded at the point. It is to be carried up close to the cervix, as high as possible, while an assistant keeps the labia separated. The incision must be made in curve lines, first boldly, and then cautiously, for fear of hurting the vagina. This is Professor Osiander's first and oldest method of operating.

"The second is as follows: When the cervix is already for the most part destroyed by the cancerous fungus, much enlarged, and the cavity full of knotty carcinomatous fungus, and it is neither possible to lay hold of the uterus with the needles, nor draw it down, then he places the patient almost in a horizontal position; makes an assistant lay his hand on the region of the *fundus uteri*, to press down the womb; fixes the bottom of the womb in the hollow of the os sacrum with the forefinger of the left hand; introduces the middle and ring-finger into the womb, and, with the help of these fingers to guide the cut of the scissars, he extirpates, in small pieces, all the fungous, rough, and scirrhous parts, with a pair of bent-bladed

scissars, and an instrument of his own invention. As soon as this is done, he fills up the cavity with a sponge dipped in wine, and in the astringent powder spoken of before, and treats the wound in the manner already mentioned.

"According to the testimony of all those who have submitted to it, this operation is not nearly so painful as one might imagine, and it heals much sooner than could be expected. Nature seems in no part of the human body to be more active in reproducing what is lost, and in healing what is wounded, than in the parts of generation in both sexes. It is surprising to see (for example) a scrotum lost by mortification, restored again in four weeks. It is no less surprising, for a kind of mouth of the womb to be regenerated in a few weeks after the *cervix uteri* has been totally cut off; or regular menstruation to be re-established equally soon from the half womb left after the operation.

"The duration of the cure is very different, as it is in every operation for cancer. One circumstance, and the result of experience, is of great importance, namely, that neither during the operation, which is conducted with so great difficulty, nor during the subsequent treatment, has one patient hitherto died. Some of them died more than a year afterwards from other causes, as from apoplexia nervosa, dropsy, and the like, or the disease returned suddenly again from new causes, and became incurable; others continued three years and more in good health.

"The sooner a patient resolves to submit to the operation, the longer will she enjoy her recovery; and the better she observes the diet that is prescribed afterwards, the better chance will she have of being freed from the evil for ever.

"It is consolatory to observe, that, in a disease which has been thought incurable, more has been done than was formerly thought possible, and that thus a new path is opened for the art of surgery, by which suffering humanity may derive help and comfort. Let, then, practitioners labour to acquire the courage and dexterity which is required to undertake such an operation, and conduct it to a fortunate termination."

Remarks by the Editor of the London Journal.—We have long suspected these diseases to arise from mere inflamma-

tion: first, because they are more common at that period of life when inflammation in different organs affects the sex, unless prevented by occasional hæmorrhage from the uterus, or by venesection; next, because at whatever age they may occur, a violent paroxysm or pain frequently precedes, and is relieved by hæmorrhage. This relief by uterine hæmorrhage is not confined to inflammation in that organ; it often attends the eruptive fever in the exanthemata, and, there is reason to believe, in many other fevers, though it is too often overlooked or confounded with the periodical discharge, or even considered as a diseased symptom; yet the relief derived from it after parturition, which is now well understood to be attended with inflammation, might induce us to think otherwise.

If inflammation in the uterus continues long, and exceeds certain bounds, we cannot wonder that suppuration or ulceration follows. The nature of the ulceration may be imputed to the structure and secretory property of the uterus, which may differ from other parts under suppuration, as we know its texture is different, and as we see a difference in the sequela of inflammation in various parts according to their structure. But, what has most confirmed our opinion, that the whole depends on inflammation is, that for some years past we have found dreadful pains in the loins and in the whole uterine region, with frequent hæmorrhage, often too at a suspicious period of life, which we apprehended might end in malignant ulcer of the uterus, always relieved by very free and very frequent cupping near the sacrum. Whether these cases would have proved ultimately the disease they were apprehended to threaten, it is impossible to determine, but this we can assert, that all the malignant ulcers, whose history we have been able to trace, have commenced with these symptoms, some of which have continued for years before ulceration. We cannot, therefore, scruple to recommend that practice in the early stage of these complaints; in the more advanced, we submit to our readers the prospect of relief held out by Professor Osiander.

Cases and Observations, illustrating the Influence of the Nervous System in regulating Animal heat. By Henry Earle, Esq. Assistant Surgeon to St. Bartholomew's Hospital, and Surgeon to the Foundling Hospital.

[From the Medico-Chirurgical Transactions. Vol. VII.]

Previous to the interesting experiments published by Mr. Brodie, in the Philosophical Transactions for 1811, it was a generally received opinion, that animal temperature depended on the chemical changes which the blood undergoes in the round of circulation. On this supposition a beautiful and apparently satisfactory theory had been constructed. This much esteemed fabric of human reasoning has, however, received a severe shock from the experiments above alluded to, which tend to establish the following facts: that when the brain has been destroyed, animal heat ceases to be generated, notwithstanding the functions of respiration are artificially continued, and apparently all the chemical changes are produced in the lungs; and further, that an animal thus subjected to artificial respiration, cools more rapidly than one that is simply killed by decapitation, probably in consequence of the circulating blood being exposed to the cold stream of air which is introduced into the lungs. From these facts it appears that nervous influence is essential to the production of animal heat.

Having met with some cases of impaired nervous energy which exhibited phænomena, powerfully illustrative of the above position, I have ventured to submit them to the notice of this Society, conceiving that a strict attention to the alterations in the natural functions, produced by accident or disease, must be considered as one of the least fallacious means by which we may hope to arrive at success in our physiological inquiries. In the present instance, the results arising from comparative experiments on animals, and those drawn from pathological observations, most happily correspond; but although they equally tend to prove the importance of the nervous system in regulating the temperature, we must not lose sight of the action of the circulation on the brain and nerves.

In the second part of this paper I shall offer some further observations on this subject, and illustrate it with instances of increased nervous energy, which, together with the first set of cases, will tend to throw some light towards elucidating an obscure but beautiful function in the animal economy; whilst at the same time they will enable us, without much difficulty, to reconcile the discrepancies which appear to exist between the former theory of animal heat, and more recent discoveries.

Should the observations I have made, and the conclusions I have drawn, be deemed erroneous and untenable, I trust the facts at least will be sufficiently important to merit attention.

Case I.

Thomas Anderson, a mariner, in the month of February, 1812, fell from the main yard into a boat alongside of the ship; he was stunned with the fall, and remained insensible for a considerable time. On recovering, he found that the surgeon had bound up his left arm, in consequence of a fracture of the collar-bone. After six days the bandages were removed, and the limb was found useless and paralysed. For about three weeks after the accident, on any attempt to move the limb, and at times when perfectly quiet, he felt violent pain, which he referred to the extremity of the fingers; but as they and the whole arm were perfectly insensible to any impressions, it is probable that the pain was excited where the nerves were injured under the clavicle, and that the percipient mind referred it to the extremities, as is frequently the case after amputation.

This painful stage gradually abated, and the arm remained perfectly palsied and useless. In this state he applied to me, about the end of August. From the history of the case it appeared most probable, that the same blow which had fractured the clavicle, had lacerated or crushed the axillary plexus of nerves just as they pass under that bone. The circulation of blood did not appear to have suffered, the pulse at the wrist being synchronous, and equally strong with that of the other limb; yet the temperature was greatly below that of the healthy extremity. As he had never tried electricity, I determined to resort to it, conceiving that it might possibly have

a beneficial effect in restoring sensibility. On examining the heat of the limbs previous to the use of electricity, I found it as follows. Left or paralytic hand 70°; bend of the arm 85°; axilla 94°. After drawing strong sparks for about ten minutes, the heat of the hand was increased to 74°; bend of the arm to 88°; axilla to 95°. The temperature of the other hand was 92°.

After using electricity for some days, he said that he felt a degree of warmth and tingling which remained for a considerable time after its administration. In ten days I repeated the experiment in a more accurate manner, after placing him on an insulated stool. The temperature at this time was:

		Before Electricity.	After Electricity.
Paralysed limb.	Hand	71	77
	Arm	80	83½
	Axilla	92	93
Healthy limb.	Hand	92	92
	Arm	95	95½
	Axilla	96	96

After some time, sensation began to return in the integuments about the shoulder and inside of the upper arm; and the muscles of the scapula and great pectoral muscle began to recover their power. It was curious to observe this gradual return of sensibility; one part of the arm possessing natural feeling, another being morbidly sensible, and immediately beyond being quite insensible to every mechanical or chemical injury.

Being desirous of ascertaining if other stimuli acted as powerfully, or if the increased heat depended on any peculiar action of electricity, I determined to apply a blister to the back of the hand. I was obliged to repeat it several times before it would act; at last however a vesication was produced. During the time that the blister was acting, there was no alteration in the thermometer placed immediately contiguous to the edge of the plaster; but on removing the bladder and applying the bulb to the denuded cutis, a rise of three degrees took place. Whether this depended on the stimulus of the blister, or on the removal of the cuticle by which a more inter-

nal part was exposed, I am not able to determine. The blistered surface was not in the least sensible to any injuries, and healed very readily. A short time after this, I recommended him to place his arm in a tub of warm grains, having previously ascertained with his other arm that they were not too hot. I was induced to recommend this remedy, from an idea that the returning sensibility might be aided by raising the temperature to its natural standard, by artificial means. He retained the arm in the pail for nearly half an hour, and on withdrawing it found the whole hand blistered in a most alarming manner, and at the extremities of his fingers and underneath the nails sloughs had formed. He said that he did not at the time feel the grains at all warm, nor did he experience the least pain. A considerable degree of inflammation spread up the absorbents, and matter formed in the axilla, which was soon absorbed and the inflammation assuaged. The temperature of the ulcerated surface of the hand varied from 80° to 86°, but from the constant application of warm fomentations and poultices, no very accurate result could be obtained, as the limb was at all times liable to partake of the degree of heat of surrounding bodies. At the time when the sores were worse, he experienced a heavy aching sensation in the hand, which was not aggravated by any external injuries.

The progress of the case from this time was slow, but it continued to advance towards a perfect cure. He quitted my care soon after the ulcers were healed, and went on board a ship to act as cook, and I have not since seen or heard from him. When I last examined the limb, the shoulder and upper arm had regained their sensation and power; the integuments in front of the fore-arm were very tender when pressed. The skin on the back of the arm was less sore to the touch. His hand was still insensible, but he felt a consciousness of returning muscular power, and more than once thought that the flexor muscles did contract involuntarily. The temperature of the whole limb was sensibly increased, but the hand was still liable to be affected by the surrounding medium.

On reviewing the circumstances of this case, it appears, that a limb deprived of due nervous influence is of a much lower temperature than natural, notwithstanding there is no apparent

diminution in the circulation of the blood. That a limb so circumstanced is incapable of supporting any fixed temperature, and is peculiarly liable to partake of the heat of surrounding media; and lastly, that it cannot, without injury, sustain a degree of warmth which would not be at all prejudicial to a healthy limb.

Case II.

Maria May, aged 14, applied to me in the year 1807, in consequence of a painful affection of the inside of the fore-arm and hand, extending to the extremity of the little finger. She was unable to account for the origin of the complaint, and said that it had been gradually increasing for some months. At the time of consulting me, the whole course of the ulnar nerve from the elbow downwards, was morbidly sensible when touched; the mere drawing on a glove would sometime cause so much pain as to make her scream and fall to the ground. The pain at times occurred spontaneously, without any apparent exciting cause. The integuments on the inside of the fore-arm near the elbow were hotter and fuller than natural. The pain deprived her of rest at night, and her general health was greatly disordered.

She remained under my care for above three years, occasionally suffering extreme torture; at other times being comparatively easy. During this long period a great variety of constitutional and topical remedies were resorted to in vain. During any severe paroxysm she always experienced most relief from the application of leeches and cold evaporating poultices. In December, 1810, she was so much worse that I was induced to propose an operation, as the only probable means of affording any permanent benefit. I was well aware how frequently the operation had failed of curing the *tic douloureux* of the face, but was induced to look for a more favourable termination in the present instance, from the nervous communications being less numerous, and from the greater length of the nerve, which would enable me to make a division above the diseased part. Having fairly explained the possibility of the disease returning, she readily submitted to the proposed operation, with the prospect of obtaining temporary

alleviation from her sufferings. Mr. Langstaff favoured me with his assistance at the operation. I made an incision of about two inches in length, beginning immediately behind the internal condyle of the humerus, and carrying it upwards in the course of the nerve. In making this wound, I exposed a considerable cutaneous branch, which I was afterwards induced to divide, in consequence of the morbid sensibility of the integuments it supplied. Having laid bare about an inch and a half of the nerve, an incision was made through it, at the part nearest the brain; the pain produced was very acute, and felt, to use the girl's own expression, like a violent electrical shock. It was however the last she had to suffer; the little finger and one half of the ring-finger from that moment lost all sensation, and the integuments on the inside of the hand became perfectly void of feeling. Rather more than an inch of the nerve was dissected out as low down as where it passes behind the internal condyle. The neurilema covering the nerve appeared firmer and thicker than natural.

Her health mended rapidly, after this source of irritation was removed; she lost all her nervous sensations; the wound healed readily, and in about three weeks from the operation she was perfectly well. All the parts supplied by the ulnar nerve had lost their sensibility, and the little finger remained in a paralysed useless state.

A short time after, during severe frosty weather, she called on me in consequence of a blister having formed on the little finger, at the extremity of which, and under the nail, there was a slough. She was unable to account for this, unless from the severity of the weather; that finger being at all times much colder than any other part of the body. By keeping it constantly wrapped up in a warm linseed poultice, it soon healed.

Three several times after this she applied to me with a similar affection, arising apparently from sudden alternations of temperature, as the weather continued cold, and she was obliged to wash dishes in warm water of a temperature not at all unpleasant to the rest of the hand. I regret that I did not then accurately ascertain the comparative heat of the finger and the rest of the hand; but at that time my attention was not alive

to the subject, and I contented myself with noting down the phænomenon*.

From the circumstances of this case I conceive it admissible to conclude, that the want of power of supporting such variations of temperature as were perfectly harmless to the rest of the hand, was dependent on the want of nervous energy; as this was the only apparent deviation from a healthy natural state.

This opinion is greatly strengthened by reading a highly interesting case of impaired nervous energy, accompanied with a loss of power of regulating the animal temperature, which was published by Dr. Yelloly in the Third Volume of the Transactions of this Society, to which I must refer for any further particulars.

As a further illustration of deficient nervous power, accompanied with a loss of temperature, I may mention, that in examining paralytic limbs I have invariably found them colder than any other part of the body, unless they have been kept artificially warm. Some time since a friend examined twenty-five cases in the Bath Hospital, and found the paralysed limbs in every instance below the natural standard.

In every case in which I have had an opportunity of making any inquiries, where the nervous energy has been materially impaired, the power of maintaining a healthy standard temperature has been in a greater or less degree lost, notwithstand-

* Since writing this paper, I have had an opportunity of seeing my patient, and of making an examination of the state of her hand. The little finger still remained nearly useless; she can bend it when the other fingers are bent, but possesses little or no power over it, independent of the others. She feels when severely pinched or injured, but her sensation in it is still very imperfect, and it conveys a wrong impression of the form of bodies and of their temperature.

It is always colder than the rest of the hand; on examining it with a thermometer I found that when the bulb was applied to the outside of the root of the little finger it stood at 56°; between the roots of the little and ring-finger 57°; outer side of the fore-finger 60°; between the fore-finger and thumb, and in the palm of the hand 62°. The heat of the other hand was on the surface of the different fingers 60°; between the roots of the finger, and in the palm 62°. The temperature of the room was 55°.

It is now January 20th, 1816,—just five years since the operation was performed.

ing the circulation of the blood has been apparently unaltered, either in degree or quantity: clearly, in my opinion, proving the important share which the brain and nerves have in regulating and producing animal heat; and showing, in a remarkable manner, that a perfect integrity of the nervous system is requisite to enable the body to resist the extraordinary variations of temperature to which it has been at times exposed, and to maintain under these different circumstances a standard heat of its own, with scarcely any perceptible thermometrical change.

I shall now proceed to consider, briefly, the phænomena produced on the nervous system by the changes which the blood undergoes in the round of circulation, and endeavour to ascertain how far such changes may be supposed to contribute to the production of animal heat; by observing the effect of any morbid alterations either in the quantity or quality of the blood, in augmenting or diminishing the temperature.* Previous, however, to entering on this subject, it will be right to premise, that it is not my intention to discuss the chemical nature of the changes effected by respiration, but simply to observe the sensible results of such alterations on the nervous system; as I do not conceive that it is of much importance to the present question, whether or not the venous and arterious blood contain the same proportions of oxygen, but in different states of chemical combination. It it sufficient to know that important changes do take place during the transmission of blood through the lungs, and that such changes are essential to the support of nervous action.

It is well known, that when from any cause the proper supply of arterial blood is suddenly arrested, and the brain deprived of its wonted stimulus, syncope ensues, accompanied with a great diminution in the warmth of the body. In malformations of the heart; in the blue child for instance, and in all

* The experiments of Dr. Davy, on the comparative heat of arterial and venous blood, prove that the temperature of the former is greater than that of the latter, and that the temperature of the left side of the heart is greater than that of the right. Here then we have demonstrative evidence of the acquisition of heat during the pulmonary circulation; we must therefore consider the circulation of the blood as *one* source of animal temperature.

cases of difficult transmission of blood, whether from disease in the lungs or sanguiferous system, the nervous functions are more or less deranged; such persons being very liable to faint, and being at all times subject to great coldness in the extremities and whole body, accompanied with numbness and imperfect sensation. These facts are so well known that it is not necessary to dwell further upon them.

On the other hand, where the circulation of the blood is morbidly increased as in fever, the nervous functions are greatly deranged by the over excitement, and generally during a paroxysm the temperature of the body is increased, in some degree, in proportion to the violence of the other symptoms. When a sudden or great determination of arterious blood takes place to the nerves of any part, it is known to produce a local affection similar to the more general derangement caused by determination to the brain. This is the case in many instances of amaurosis, which are remediable by copious bleedings.

The painful sensation produced by suddenly heating the hands after much exposure to cold, may likewise be referred to the rapid flow of blood over-exciting the nerves. When this takes place to a great degree, and when the alternation of temperature has been very sudden, inflammation and sometimes mortification is the consequence; on this principle we apply cold to a frost-bitten limb, and gradually increase the heat to prevent the effect of a sudden over-excitement of a part whose vital powers have been exhausted.

In no case, perhaps, is the effect of a local determination more marked than in *tic douloureux*. In every instance of this distressing malady which has fallen under my observation, during each paroxysm of pain, there was an evident increased flow of blood to the part, accompanied with an increase of heat more or less perceptible.

In the instance of Maria May related above, this was well marked. In a very interesting case, which I have lately attended, of affection of the nerves of the forehead and face, there was a well defined red line in the whole course of the supraorbitary nerve, accompanied with so much heat as rapidly to evaporate any cold washes which were applied. In another case of a middle-aged widow lady, who had been afflicted for years

with *tic douloureux* of the inferior maxillary nerve, for the cure of which she had submitted to several operations, but who still at times suffered from pain in the deep seated temporal branches, the gustatory nerve, and all the branches supplying the masseter, pterygoid and buccinator muscles; during each paroxysm there was a violent pulsation in all the branches of the external carotid artery, which terminated generally in a most profuse flow of saliva, after which she experienced temporary relief.

In all these affections, the local abstraction of blood and the application of cold are found most beneficial, and occasionally immediate ease is obtained, by forcibly compressing the part, and thus diminishing the influx of blood. A curious instance in illustration of this was lately mentioned to me. A blacksmith, who for many years had suffered from a violent pain in the nerves of the forehead whenever he exerted himself, accidentally found that he obtained ease by compressing the trunks of the temporal arteries; upon which he contrived a strong spring with a pad at each end, which he fixed on his head in such a manner as to compress the temporal arteries. This spring he wore whenever he went to work, and was thus enabled to remain at the anvil all day without suffering.

That there is an increased flow of blood to the part in these painful nervous affections, is not only shown by the redness and arterial action, but has been proved by an interesting dissection mentioned by Bichat, of a case of painful affection of the sciatic nerve, where the vessels of the neurilema were evidently enlarged in size, and increased in number, so as to be quite tortuous.

A singular instance, illustrating the effect of an inflammatory determination of blood to a nerve, occurred to me in the course of last year, and tends much to corroborate the preceding remarks.

Maria Williams, a foundling, aged 32, who had been retained in the hospital in consequence of a deficiency of intellect, in February, 1814, wounded her arm with a fork, and punctured the external cutaneous nerve, about half way down the fore-arm. She experienced much pain soon after the accident, in the whole course of the nerve, and considerable inflamma-

tion took place in the neighbourhood of the wound. She was directed to keep the arm very quiet, and to apply evaporating washes. About three weeks after the accident she had occasion to use the limb, when she was suddenly attacked with great pain and a sense of burning in the seat of the original wound. Erysipelatous inflammation soon spread over the whole front of the fore-arm, which terminated in several large vesications, giving an appearance very similar to the disease termed Pemphigus. The heat of the arm was very great, and quickly dried the damp cloths which were applied. By perfect rest, and evaporating poultices with opium, she soon recovered from this attack; but on attempting shortly after to use the arm, a recurrence of the same symptoms took place. The heat was so great this time as to lead me to ascertain its extent with a thermometer, when I found that the mercury rose nearly three degrees higher when applied to the arm, than when placed under the tongue. At this time vesication had taken place in some parts, and probably the temperature was lower than it had been in the previous stage of inflammation. Subsequent to this, she experienced four several relapses, all apparently induced by inadvertently using the arm. The last attack was in September, and differed somewhat in its character from the former; no vesications following the inflammation, and the appearance bearing more analogy to urticaria than to pemphigus.

The inflammation was always confined to the front of the fore-arm, and did not appear disposed to spread. The nerve during the whole time was acutely sensible when pressed. After September she retained her arm constantly in a sling for the space of three months, and has experienced no return of inflammation since.

The increased temperature in this case was very remarkable, and forms a striking contrast with the first case which I have related of crushed nerve, where the thermometer only rose to 74° when applied to the exposed cutis of a recently blistered surface. I consider this case as equally important in illustrating the action of arterious blood on the nerves, and in explaining the phænomena of inflammation. It is also strongly corroborative of the observations of Sir E. Home, detailed in some experiments which he published in the Second Part of the

Philosophical Transactions for the year 1814, proving the influence of the nerves upon the action of the arteries; for I conceive there can be no doubt that these violent inflammatory symptoms were all produced by the injury done to the nerve, as they could at any time be brought on by exciting it in any way.

It appears then, from the evidence which has been adduced, in the first place, that an integrity of the nervous system is essential to the evolution of animal heat, and that when any part of it is impaired by accident or disease, the due performance of this calorific function is either partially or generally deranged. Secondly, that the stimulus of arterious blood is necessary for the excitement of the brain and nerves, and likewise for the proper development of animal heat. Thirdly, that there exists a considerable sympathy between the nervous and sanguiferous systems, and that an injury inflicted on a nerve is attended with an increased arterial action, and a local determination of blood. Lastly, that such a local determination, whether the effect of disease or injury, is accompanied by a sensible increase of temperature at the part.

In conclusion, I shall offer some remarks on the curious phænomenon produced by placing a ligature on the principal artery of a limb, which has hitherto been difficult to account for, but which admits of a ready solution on the principle of vital heat being the result of the action of arterious blood on the nerves, (a conclusion which the facts related above would seem to warrant) whilst at the same time it affords a powerful illustration in support of such a theory.

When a ligature is placed on the principal artery supplying a limb with blood, the circulation in the smaller anastomosing vessels, and in the capillary system, is much increased. The limb is furnished with a smaller quantity of blood, but what does circulate must necessarily pass through vessels of a smaller calibre, consequently they are preternaturally distended with blood; and if a limb be examined under these cirumstances, it will be found that the communicating vessels are enlarged. They subsequently undergo a further change, and after some time again contract to their former size. The effect produced by these changes on the temperature of the limb, is an increase of

heat beyond the natural standard of the healthy limb, at that part immediately below where the artery is tied, which increase of heat gradually extends itself over the whole limb. This could not happen if the temperature depended solely on the circulation, as the actual volume of blood, the supposed source of heat, is lessened; but at the same time be it remembered, that the smaller order of vessels and the capillaries, in short those vessels which immediately supply the nerves, are receiving more than a due proportion, consequently the nervous system is over-exerted and more heat developed, first, at that part where there is the greatest impulse of blood, and subsequently over the whole limb, in proportion as the increased collateral circulation is established.

It may be urged in opposition to this explanation, that this increased temperature does not invariably follow the application of a ligature to the trunk of an artery. It will not be difficult to reply to such objections, when it is considered under what very different circumstances a ligature is applied, and that in many instances of aneurism the collateral circulation is in a great degree developed before the ligature is applied; in others, the main trunk below the aneurismal sac is obliterated; and in others again, a principal communicating vessel of the first order is given off a short distance above the situation of the ligature; all which circumstances would very materially influence the results, for reasons too obvious to require explanation. In all the instances, however, in which I have known a ligature suddenly applied to the main trunk of an artery, in a limb which had not undergone any previous change, the increased temperature above described has been the invariable consequence.

Berners Street, Dec. 28, 1815.

Observations on a Change of Colour in the Skin, produced by the internal use of the Nitrate of Silver. By I. A. Albers, M.D. of Bremen.

[From the Medico-Chirurgical Transactions, Vol. VII.]

The skin of a woman, the history of whose distemper I shall communicate in the sequel, had contracted a blue colour all over the body. As there was not the least appearance of any disease in the heart, and as neither the circulation nor respiration were in the least affected, I was unable to trace the cause of this phænomenon; and I probably might have laboured in vain to discover it, had not my attention been drawn to it by a letter from the late Dr. Reimarus of Hamburgh, who informed me, that in his town two patients had exhibited a blue tinged skin, after the use of the nitrate of silver. Soon after I learned the same fact from Professor Rudolphi of Berlin, who was at that time still residing at Greifswalde, where a physician of the place had made the same discovery. I shall now state the history of the case, which I have myself treated, and in which there can be no doubt, but that the change of the complexion was to be attributed to the use of the above-mentioned remedy.

A fat women, aged 30 years, of a relaxed habit of body, but otherwise healthy, and the mother of four blooming children, in 1801 was seized, during the night, with epileptic fits, without there existing any cause that could be assigned for them: these fits returned four times in the interval of from four till six o'clock. I prescribed the nitrate of silver, in the form of pills, and in the following dose.

℞ Argenti nitrici gran. iv.
Micæ panis albi q. s. f. pilulæ ponderis granorum duorum no: 84. Obduc. fol. argenti.
Dosis mane et vespere quatuor.

Although after the use of these pills the spasms did not return, the patient continued them without my knowledge, near three years and a half without intermission; in the latter part of this period, however, she took them only in the evening.

Towards the end of the last year, she being then pregnant of her fourth child, the change of her complexion became first observable, and particularly so in her face. The tinge was at first bluish; it then grew gradually darker, till at last it became, as it has since continued, quite dark and almost black. This blue colour has spread all over the body, yet is most intense on the face, on the fore-part of the neck as far as the middle of her bosom, and on the hands and nails. Whenever the patient holds her arms in an erect posture, the blue colour is considerably lessened, and even disappears almost entirely. The sclerotica is likewise considerably coloured. The patient has on the arm a large scar, the result of a former issue, which appears quite white; at least I can discover no bluish hue in it. The blue colour is not of the same depth at all times, but often changes several times in one and the same day, without there being any determinate reason for it. At one particular time however, it appears strongest, namely, at the epoch of menstruation, after the accomplishment of which it again vanishes.

The patient's blood looks altogether like that of a person in perfect health. The woman is besides quite well, and does not experience the least impediment in breathing, and since the use of the nitrate of silver has only once had a relapse of her epileptic fits. A variety of remedies, for example, sulphuric acid, nitric acid, chalybeates, baths of different kinds, &c. have hitherto been exhibited to no purpose whatever. The colour has for these ten years remained the same.

The three following cases were communicated to me by Dr. Schleiden of Hamburgh; the two former of which, however, were observed by Dr. Chaufepié, who is resident there, and only the latter one by himself.

A lady, 35 years old, employed this remedy eight years ago, and her sister, 38 years old, ten years back, against epileptic fits; no cure, however, was effected by it; but merely a less frequent return of the paroxysms. In both the blue colour is visible at this very time, and more particularly in those parts which are exposed to the light, as the face, hands, neck, and articulations; the colour is less strong on the body. The latter patient is coloured deeper than the former.

The third patient was a young man of 20 years, the son of a

merchant of this town, born of an epileptic mother, and from his infancy afflicted with the same disorder. In this case there exists besides, from his early youth, an unconquerable propensity to onanism. All the remedies administered proved unsuccessful, and very frequently he was affected with three and four fits in one day. When I treated him five years ago, I exhibited the nitrate of silver, the only remedy that had not yet been used. He made use of it during a quarter of a year with the only effect, that at the end of this period the paroxysms returned only once in a fortnight. But as the efficient cause of the disorder still continued to operate, under which circumstances no cure could be expected, I thought it incumbent on me, to rest contented with seeing the frequency of the fits lessened, fearing lest the continued use, in large doses, of this corrosive remedy might injure the stomach of so weak an individual.

Although I do not recollect to have read any observation made by an English physician on this effect of the nitrate of silver, yet a hint given by Professor Autenrieth, at Tubingen, induces me to think that they are known in England. This respectable gentleman told me when I was at Tubingen last year, that he was almost sure to have met with some such observation in an English work, but he could not find it afterwards. Professor Reuss of Gottingen, who is so eminent for literary erudition, likewise hunted for it, but without any better success. Professor Autenrieth's assertion struck me the more, as many physicians of Geneva, with whom I conversed on the subject, and who are so deeply read in English literature, did not know of any observation of this kind made by English physicians. If, however, I have been anticipated, I hope the learned members of the Society will pardon me for communicating to them these remarks, and those of my two friends Dr. Chaufepié and Dr. Schleiden. I am anxious to collect information from all quarters on this subject, and shall be most thankful to any of the members of this highly respectable Society, for any information they may please to communicate to me; for which purpose I take the liberty of subjoining the following questions.

1st. As the blood in these patients is of the natural hue, can it be doubted, but that the blue colour must be looked for in the reticula Malpighiana, in which it is produced by the nitrate of silver?

2d. Why does this effect of the remedy occur so seldom? and why does it often not take place at all, when exhibited in very copious doses, but not long continued, as is proved by an essay lately published by Dr. Powell?*

3d. Is there any probability that this change of the cutaneous colour is produced by the protracted application of the remedy? If this were the case, the second question would be answered.

4th. Why do the parts exposed to the light, more particularly contract a blue colour?

5th. What remedies might be prescribed to cure this alteration of the skin?

Additional Facts relative to the subject of the preceding Paper.

By P. M. Roget, M. D. F. R. S. Physician to the Northern Dispensary.

Having some years ago met with an instance in which a change has taken place in the colour of the skin, similar to that described by Dr. Albers in the preceding paper, and arising from the same cause, I am induced, with the approbation of the council, to subjoin to it a brief account of the history of this case, as well as of some others which have occurred on the continent: for it is only by accumulating evidence on the subject, that we can hope to arrive at the true theory of this singular phænomenon.

A young lady, about 25 years of age, while apparently in good health, was seized with an epileptic fit, which lasted twenty minutes. The misletoe, aided by occasional cathartics, was taken for a long time without any apparent advantage, and a second attack occurred about three months after the first. It was more violent, and continued above an hour. I then directed her to begin a course of the argentum nitratum, in the form of pill: gradually increasing the dose from one to two grains, three times a day. At an interval of two months a third fit occurred. The dose of the remedy was still further increased, but another attack was experienced at the distance of three

* Observations on the internal use of nitrate of silver, in certain convulsive affections. By Richard Powell, M.D. Medical Transactions, published by the College of Physicians in London.

weeks from the preceding: it was, however, much milder than the last. The fits now continued to recur at irregular intervals of two or three weeks; but were on the whole becoming less violent and at length ceased altogether, between nine and ten months from the period of the first attack. The dose of the nitrate of silver had by this time been increased by little and little, till the quantity taken amounted to 18 grains in the four and twenty hours. It was continued in this quantity with occasional intermissions of ten days or a fortnight, for four or five months, and then left off by gradual diminution of the doses. During the whole period that the patient was taking this medicine, her general health continued to improve, and she got rid of a variety of nervous feelings to which she had before been subject. Some time *after the remedy had been totally discontinued*, she observed that the tongue and fauces had acquired a very dark colour, as if stained with ink: this for a time increased, and afterwards somewhat diminished; but a considerable degree of blackness in those parts has remained permanently fixed. About a year and a half after she first began to take the nitrate of silver, and several months after she had entirely left it off, it was observed that the complexion was growing dark: this was first noticed about the eyes, but not particularly about the lips. This change has gradually proceeded, without any perceptible derangement of health, affecting equally the skin over the whole body. It appears to have attained its maximum in the course of a year, and though it is now six years since she has taken any preparation of silver, still continues with nearly equal intensity. It is liable to occasional variations, which I have not, however, been able to trace to any determinate cause: the period of menstruation, in particular, has no apparent connection with these changes. Of late years her health has been considerably deranged, apparently from the predominance of a nervous temperament; but there has not been the slightest threatening of her original complaint.

The effect in question has been noticed by Fourcroy,* as appears by the following passage: " Un ministre protestant des environs de Hambourg, attaqué d'une obstruction au foie, prit,

* Medecine éclairée par les sciences physiques. Tom. I. p. 342.

par le conseil d'un empirique, de la dissolution nitrique d'argent. Ayant continué pendant plusieurs mois l'usage de ce remède, sa peau s'altéra insensiblement, et elle devint enfin presqu' entièrement noire. Il y avait plusieurs années que cette couleur durait, elle commencait pourtant a diminuer." It does not, however, appear that this observation had attracted much attention, since no analogous instance had been recorded till very lately. Dr. Butini, junior, in an inaugural dissertation, published at Geneva last year, "*De usu interno præparationum argenti*," after stating the above-mentioned remark of Fourcroy, gives the history of three cases, two of which were observed by his father, and one by himself, of the same dark hue in the skin following the long continued use of the nitrate of silver for the cure of epilepsy. In the first of these, the disease had supervened on an attack of hemiplegia, and threatened by the violence and frequency of its attacks to terminate by sudden death, or to destroy at least the mental faculties. All the ordinary remedies having failed, the nitrate of silver was tried, and its use continued for two years and a half, in which period $33\frac{1}{2}$ drachms were taken, making an average of $2\frac{1}{3}$ grains per day. The paroxysms were by this treatment rendered so mild, as hardly to partake of the epileptic character; and their tendency to recurrence was detected only by slight attacks of nervous anxiety and perturbation of mind. In the mean time, however, the face acquired a singular purple hue; this change being ascribed to the remedy used, it was discontinued, and the subsequent cure entrusted to the efforts of nature. Five years have since elapsed, during which time there has been no recurrence of epilepsy, and the mind has continued sound; but the dark colour of the skin has daily become more intense. The head, and especially the face, is tinged with a deep violet approaching to black, and having a complete similitude to the negro, or to a bronze bust. The hands are as deeply coloured as the face. The sclerotica is but little changed: the rest of the body, which is covered by the clothes, has preserved its natural hue, with the exception of a very slight tinge scarcely perceptible unless in the shade, but still sufficiently manifest to show that the whole skin has partaken of the affection produced by the silver.—In the second case, $7\frac{1}{2}$ drachms of the nitrate were

taken in the space of 15 months, which corresponds to a daily dose of one grain. The change in the colour of the face did not take place till after the disease had been completely cured. At the end of three years, no relapse had occurred, but the darkness of the complexion continued, though in a somewhat less degree.

Another case is detailed by Dr. Butini, as having occurred in the practice of Professor Delarive of Geneva. The epilepsy had affected the patient from the age of 12, and had continued with great obstinacy for four years. The nitrate of silver was at length resorted to; beginning with half a grain daily, and increasing this quantity every fortnight by half a grain. By pursuing this plan of treatment, the intervals between the paroxysms were much protracted; but the use of the remedy being interrupted in consequence of the patient's travelling, they again became frequent, and it was resumed in the quantity of three grains daily, which was soon increased to six. The disease now, for the first time, appeared effectually to give way; and at the end of eight months, during which the remedy has been regularly continued, no distinct paroxysm had occurred, though there were several slight and transient affections which appeared to be connected with the disease. In this case also a slight blueish tinge is beginning to be perceptible.

I may, perhaps, be allowed to subjoin another case of epilepsy which has lately occurred to myself, in which I had prescribed the remedy in question, with the most marked beneficial effect on the disease: its attacks now occurring only at very distant intervals. I understand the same change in the colour of the skin, as in the other cases, is beginning to take place; but as my patient is on the continent, I am unable to state the fact otherwise than from the report of those who have lately seen him.

P. M. ROGET.

June 20, 1816.

SELECTED REVIEWS.

A Treatise on the nature and Cure of Gout, comprehending a General View of a Morbid State of the Digestive Organs; and of Regimen; with some Observations on Rheumatism. By CHARLES SCUDAMORE, M. D. &c. 8vo. pp. 402. Lond. 1816.

[From the London Medical Repository, for October, 1816.]

THE epithet *Opprobrium Medicinæ*, which has been applied to a few of the long list of evils over which the healing art has endeavoured to extend its dominion, has, particularly in the disease which forms the subject of the volume before us, too often damped the ardour of inquiry in those who were the best qualified to investigate its causes, and paralysed the efforts that might have been otherwise successfully exerted in fixing its treatment on sound and rational principles. The young practitioner has hesitated to employ in gout those means by which he knows he can readily control similar symptoms in other forms of disease, on observing his elder brother in art an idle spectator of its baneful influence; while the patient himself, after finding that regular medicine has aimed at little more than palliating the urgency of his sufferings, has either himself strayed into the path of empiricism, and become his own physician, or has fallen the victim of impudent pretension and unblushing imposture. To attempt, therefore, an inquiry into the nature and cure of gout, upon scientific principles, is a merit of itself, independent of the success that may attend the effort. How far our author has succeeded, we shall endeavour to enable our readers to decide.

In his preface, after a rapid sketch of the causes which have contributed to render the treatment of gout empirical, even under the care of the regular practitioner, Dr. Scudamore points out the following general positions, as the ground-work upon which he has built his reasonings regarding the nature of the disease, and the method of treating it:

"That the gout is a disease not only injurious to the constitution, but destructive of the organization of the particular

textures which it affects; and, by such united influence, tends both to shorten and embitter life:

"That it is as completely within the useful influence of Medicine as any other severe disease:

"That the fit may be immediately relieved in its painful symptoms, and materially shortened in its duration:

"That most of its natural bad consequences may, by timely care, be prevented; and, finally;—

"That all these advantages may be afforded by means, which, in removing the disease, tend at the same time to restore the constitution."—p. xii, xiii.

As to the security from future attack, he justly regards that as being altogether within the patient's own peculiar care, provided the paroxysm and the period of convalescence have been properly managed.

The first section of the treatise is a comment upon the definitions of Cullen, to which Dr. Scudamore offers several objections. In the general definition, he objects to the term *Morbus hæreditarius*, as the disease very frequently occurs where no hereditary reference can be traced; and, also, to the assertion, *oriens sine causa externa evidente*, as the disease may be called into action by "a sprain, contusion, or any kind of local injury," when the predisposition to it exists. With less justice he objects to the term *pyrexia*, and to the implication that the joints of the extremities are the seat of true gout; for although there are certainly cases which may be advanced as objections to both these parts of the definition, yet, as it is impossible that a definition can embrace every anomaly, it should be framed from the symptoms attending the more perfect paroxysm, which are generally the earliest of the disease; and it can scarcely be denied that these are attended with fever, and that the seat of pain is one or other of the joints of the hands or feet. We are indeed more surprized at the last objection, as in a table which we shall afterwards quote, out of seventy-one cases of first attacks, sixty-nine were in the feet and hands. We, however, readily admit, that the appellation, *Arthritis*, is preferable to that of *Podagra*, adopted by Cullen. His remaining remarks on the general definition are still more hypercritical.

With regard to the varieties, our author condemns the terms *regular*, *atonic*, *retrocedent*, and *misplaced;* particularly the three latter, as favouring a carelessness of observation in the practitioner, who, under the term irregular gout, "considers himself as excused from the difficult task of nicer discrimination; and, instead of these, proposes to divide gout into *acute*, *chronic*, and *retrocedent*." He considers Sydenham as the first author, "who wrote with much perspicuity on gout and rheumatism:" but his doctrines were clogged with all the prejudices of the humoral pathology. The following are the definitions offered by Dr. Scudamore:

"GOUT.—A constitutional disease, producing an external local inflammation of a specific kind; the susceptibility to it often depending on hereditary bodily conformation and constitution, but more frequently wholly acquired; not occurring before the age of puberty, seldom under the age of five and twenty; and most frequently between the ages of twenty-five and thirty-five; affecting chiefly the male sex, and particularly persons of capacious chest and plethoric habit; in the first attack invading usually one foot only, and most frequently at the first joint of the great toe; but in its returns affecting both feet, the hands, knees, and elbows, not only in the articular structure, but also in the other textures belonging to the moving powers, different parts being affected together, or in succession; often accompanied with sympathetic inflammatory fever, which is marked by nocturnal exacerbations and morning remissions; much disposed to return at periodical intervals, and often ushered in by premonitory symptoms.

"ACUTE GOUT.—Inflammation and pain of the articular, tendinous, or bursal structure, usually attacking one part only at the same time, but in succession of attack affecting different parts together; with preternatural fulness of the adjacent veins, and in certain situations, with œdematous swelling of the integuments, occurring in twenty-four or forty-eight hours from the invasion of the fit; vivid redness of surface, which is sometimes shining; entire disability of the affected part, with peculiar sensations of burning, throbbing, cutting and pricking, and weight; the action readily changing situation spontaneously, or from slight causes; terminating almost invariably without

suppuration, and usually with critical indications of the event.

"CHRONIC GOUT.—Inflammation and pain more slight, irregular and wandering, than in the acute; faint redness of surface, much permanent distension of parts, or continued œdema, and impaired moving power; without critical indications of its terminating; associated with a morbid state of the digestive organs, a languid or oppressed circulation, and much nervous irritation in the system.

"RETROCEDENT GOUT.—Metastasis, or transference of the gouty action in the paroxysm, from the external part, to some internal organ."—pp. 15—17.

These definitions are certainly much too long, and embrace too many objects; brevity being the essence of a definition, which should entertain the more prominent characteristics only of the object, or the action described, by which it is distinguished from every other object or action. A definition should also be of such a length only as to allow of its being easily committed to memory.

The history of acute gout is divided by Dr. Scudamore into *premonitory symptoms*, the *paroxysm* comprehending the symptoms of a first fit and those of subsequent attacks, and the *sequelæ*.

The disease is not preceded by premonitory symptoms in every instance; its invasion in the first fit being more commonly immediate, and generally happening in the night: but often symptoms occur for several days, which announce the approach of the disease. These are well and accurately detailed by our author. They are chiefly those of dyspepsia, attended with anomalous pains and feelings of directly opposite natures in different constitutions. We are rather surprised not to find noticed amongst them severe and continued sneezing, a premonitory symptom which we have observed in more than one patient.

The history of the paroxysm, we are told, is drawn up "from the results of our author's own experience and careful observation." The first fit, he informs us, in the majority of cases, "makes its attack between twelve and three in the morning:" and the great toe of one foot only is the part affected; but besides the pain, stiffness, burning, and throbbing in

the part, fever and restlessness supervene, and continue for two or three hours, when they yield to gentle perspiration, and some sleep is procured. The degree of pyrexia, however, he regards as altogether sympathetic, and "proportioned to the local inflammation and pain." From seventy-one examples, under his "own observation," he has drawn up the following comparative table "of the parts affected in the first fit."

"In the great toe of one foot only, forty-nine cases. In the great toe of each foot, four.—In the toe and instep, two. In the outer side of one foot, two.—In one ankle, two.—In each ankle, one.—In ankle and instep of one foot, one.—In toe, instep, and ankle of one foot, one.—In instep of each foot, one.—In heel of one foot, one.—In each foot and hand, one.—In one toe and thumb, one.—In right knee, one.—In left knee, one.—In one hand at the back, one.—In one wrist, one.—In each hand at the back, one."—p. 24.

The frequency of subsequent attacks depends on "the constitutional tendency to the disease, and the mode of life of the patient. The same foot is generally affected, "but it seldom happens that the other foot escapes."

Under the title of *Aggravated Returns of Gout*, after describing the usual external appearances of the disease, our author hazards the following theoretical opinion:

"When the cellular parts have been for some time swollen and tense, the blood which has stagnated in the strictured vessels ceases to give the vivid blush of red, and changes to the different shades of purple."—p. 27.

Now we conceive it to be quite an assumption, that there is stricture of the vessels; and, if there were, it is not very probable that the blood would stagnate in them; but if any stagnation occur, it would more probably be before the strictured parts of the vessels, which would necessarily be dilated beyond their ordinary diameter, by the accumulated blood.

The severity of the pain inflicted by gout is almost proverbial: our author observes, that observation has taught him that it is most urgent when the elbow-joint and the tendons at the wrist are the parts affected. The temperature of the part, as indicated by the thermometer, we are told, is "greatly beyond the natural standard;" an expression much stronger than his

experiments to be afterwards noticed authorises. Several cases are quoted, as described by the patients themselves, to exemplify, in a striking and familiar manner, the severity of the local symptoms.

Having detailed the local effects of the disease, Dr. Scudamore proceeds to notice the constitutional symptoms of the paroxysm. These more generally resemble those attendant on an aggravated attack of dyspepsia; the intestinal secretions are foul and offensive; and the urine, which is scanty and of a deeper colour than natural, is much increased in specific gravity; and, on cooling, "deposits a pink or brick-dust sediment, with much mucus." There is some degree of incorrectness in regarding the deposition of the pink sediment as one of the symptoms occurring during the continuance of the paroxysm, as it does not begin to appear until it is fairly over, or the crisis is passed. "The sensibility of the nervous system is highly excited; and a general febrile action accompanies the local inflammation." Acute gout leaves, as sequelæ, dyspepsia, a disposition to hypochondriasis and apoplexy; occasionally a diseased condition of liver; and our author has met with chronic splenitis in two very gouty females. Gout has generally been supposed to leave also a disposition to calculous complaints, an opinion which does not accord with the experience of Dr. Scudamore, who observes that, "calculus of the bladder is a very unfrequent complaint amongst gouty persons." The local changes produced by gouty inflammation are well described. The gouty concretions (commonly called *chalk-stones*) occur only in a few individuals of particular gouty idiosyncracy.

"They result from inspissation of the peculiar morbid secretion which constitutes their composition, and are found in various situations from within the synovial membrane of the joint, even to the layers of the cutis. I have found them in the living subject, filling the bursæ, and condensed to great hardness; in the sheaths of tendons feeling almost stony; in the cellular membrane either in hard or soft lumps; and under the cuticle, pressing for escape."—p. 39, 40.

Dr. Scudamore, like preceding writers, has divided the remote causes of gout into *predisposing* and *exciting*, a division,

however, which has occasioned much confusion, scarcely two authors agreeing which are to be regarded as predisposing, and which as exciting causes. Under the predisposing we find *hereditary predisposition* first mentioned; a cause which has been pretty generally regarded as being more evident in gout than in any other disease. Our author does not deny the hereditary nature of gout; but he maintains that it is more frequently acquired, and satisfactorily supports his opinion by the following comparison:

"Of 77 patients, the number of those in whom the disease

was hereditary from the father, was - - - -	21
mother, - - - - -	5
father and mother, - -	3
Of those whose grandfather only had gout, - -	3
grandmother only had gout, - -	1
aunt only in the family had gout,	1
Not known either on the father's or mother's side,	43

"From this statement it appears, that the cases of acquired gout, in which no family reference could be traced, were to the rest as 43 to 34; and in the examples contrasted with those immediately hereditary, as 43 to 29."—p. 42.

Although we are willing to admit "the exemption of youth from gout," and its more frequent occurrence at adult age, yet, we cannot conceive how *adult age* can be placed as a predisposing cause of the disease. The fact is, that at this period many other predisposing causes begin to operate; as, for example, habits of indulgence as to food and sexual intercourse. From a tabular view, exhibiting the period of the first attack in sixty-four cases, more than two-thirds appear to have occurred between twenty-five and forty years of age. Another tabular comparison in relation to stature and bulk of 118 cases of the disease, shows that 41 males and 7 females were tall and corpulent, while 6 males and 4 females only were short and slight; hence we allow that our author is authorized in regarding *particular bodily conformation*, as a predisposing cause; and as justly are *constitution and temperament* set down under that head. We would make the same remark, on the ranking *the male sex* as a predisposing cause, as we have just made on adult age; and the author himself supplies us with an argument.

"The more common occurrence of this disease in men than in women, must without doubt be principally referred to the chief remote cause, excess in living, and especially excess in wine, being applied in a greater degree to the former. But in addition to this circumstance, the superior delicacy of the female structure and habit, puts some restraint on the acquirement of the inflammatory and plethoric state of vessels which appertains to gout. The actions of the uterus are not without effect in counteracting a general redundancy of blood. A gout of imperfect development, or of a chronic form, is more common in women than in men. It is also seldom acquired in the former, unless with the concurring influence of hereditary predisposition. In the few exceptions which do occur to this general rule, we meet with the circular chest, large full veins, relaxed solids, and tendency to corpulency, which have been already described as prevailing in gouty men."—p. 106, 107.

The other predisposing causes enumerated by Dr. Scudamore, to which we conceive no objection can be made, are *station of life and occupation*, *state of mind*, *animal food*, *indolence*, *plethora*, *nimia venus*, *a morbid state of the digestive organs*, and *variable climate;* each of which are fully and ably illustrated. The acquired predisposition to the disease, he asserts, depends on unhealthy assimilation, a state of which it is difficult to judge, because it is often conjoined with an active appetite: but, although the powers of the stomach may be apparently sufficient for the digestive function, yet, it is justly remarked, that this organ only begins the process; and a morbid interruption to any part of the train of digestive "functions, may become a predisposing or [an] exciting cause [of] gout." The most remarkable symptom which marks the seat of the dyspeptic symptoms being the intestinal canal, is an increased secretion of mucus, which assumes a gelatin-like appearance, and detached from the fæces when passed. This appearance of the mucus, which is not well described by our author, is often very remarkable. We have seen it many yards in length, assuming an appearance very similar to that of tape worm.

Severe study and *strong liquors* ought certainly to be considered rather as *exciting* than *predisposing causes;* and in support of this opinion, particularly with regard to severe study,

we would advance the observation of Sydenham, quoted by our author, " that his immoderate application to the composition of his treatise, occasioned him the severest fit of the gout which he ever had."

The first of the exciting causes, noticed by our author as such, is *excessive intemperance*, a cause regarding the operation of which there can be but one opinion: the second is *acidity*, which, when " much accumulated in the primæ viæ," will sometimes prove alone sufficient to excite a fit, and always powerfully concurs with other causes. The third cause mentioned, *excess of bile*, we think more questionable; and it is not improbable that the jaundiced skin and symptoms of increased hepatic action, said to " occur as the short precursors of a paroxysm," are really sympathetic symptoms of the actual presence of the disease, although the local and more obvious effects be not yet evident. There can be no doubt of the propriety of regarding *cold* as an exciting cause of gout; and the same may be said of *external injuries* and *passions of the mind*, in the strongly predisposed.

Dr. Scudamore next enters upon a more difficult discussion, and one which, to employ his own language, has proved an *ignis fatuus* to medical theorists—*the proximate cause* of gout. In noticing the doctrine of a *morbific matter*, which appears to have taken its rise from the uric concretions, commonly called chalk-stones, that appear on the extremities of some gouty individuals, he enters into an examination of the nature of the pink sediment deposited in the urine on the decline of each paroxysm; and has satisfactorily, in our opinion, proved, that the theory supported by Vogel* and other French chemists, which supposes this to be a distinct acid, the rosacic, is by no means demonstrated: but, on the contrary, that it is simply uric acid modified by some principle, probable animal matter, which is separated from it by the action of other acids; for example, as the sulphuric and sulphureous, in which it is soluble. The presence of this sediment, however, he contends, is " not to be considered as a proof of an excess of uric acid; but ra-

* A translation of Vogel's Observations and Experiments upon the Rosacic Acid appeared in the *Repository*, vol. v. p. 431.

ther as a separation of this principle from the urine, and a new combination with some other of its elements." The urine containing it, he ascertained by experiment, is of a high specific gravity; and he found that its appearance and quantity in the urine was always connected with and in proportion to the unhealthy state of the chylopoetic functions, but neither "necessarily nor regularly attendant on a paroxysm of gout."

Having negatived the suggestion, that the proximate cause of gout is an excess of uric acid, our author next proceeds to examine that theory which attributes it to an *excess of phosphoric acid.* This opinion was suggested by Berthollet, who imagined that his observations led him to conclude, that phosphoric acid is naturally in much smaller quantity in the urine of individuals subject to gout than in healthy persons; "but that at the approach of a paroxysm, and during its continuance, the urine contains as much of phosphoric acid, as that of persons of strong constitution, and much more than belongs to the gouty in their ordinary state." Thirty-seven experiments of Dr. Scudamore, to ascertain the truth of Berthollet's opinion, are perspicuously detailed, and a tabular abstract of the results given from which it appears, that although there is really an increased proportion of phosphoric acid in the urine of persons labouring under a paroxysm of gout, yet, that the same circumstance occurs in persons suffering under other diseases, as for example, diseased liver and continued fever, who had never had gout. He, therefore, properly concludes, that as "the phenomenon in question cannot be considered as a specific occurrence in gout alone," it cannot be regarded as the proximate cause of that disease.

As we conceive every information connected with the cultivation of animal chemistry cannot be too widely diffused, we extract the method employed to ascertain the quantity of phosphoric acid in the urine examined by Dr. Scudamore.

"In these experiments, nitrate of lead was the precipitant employed; and the urine was diluted with distilled water. A portion of the urine, first and separately passed in the morning, was, in each case, chosen for examination. The precipitate was carefully dried and scraped from the filter. Of this a certain quantity was boiled in water, that the muriate of lead might

be removed; and with it also the uric acid was separated. It was then burnt in a crucible for about half an hour, that the several animal matters should be destroyed as much as possible. It was next boiled in diluted nitric acid; and being allowed to rest, the clear liquor was decanted from the sulphate of lead and some insoluble animal matter. To this ammonia was added in excess; the precipitate was collected on the filter, dried, and weighed. This was the phosphate of lead, from which the relative proportion of phosphoric acid was estimated, by means of Dr. Wollaston's logometric scale."

Our author briefly mentions some incongruous opinions of Barthez, the most copious of the French writers on the subject of gout; and then notices Dr. Sutton's theory of a morbific secretion in the alimentary canal being the proximate cause of the disease; an opinion which he regards as not only gratuitous, "but much too restricted in its views;" and considers as generally less objectionable Dr. Parry's idea, "that the gout is a disease depending on certain conditions of the circulating system." He very prudently advances no direct theory of his own under the head proximate cause: but in proceeding in the investigation of the ratio symptomatum, he arrives at the following conclusion:

"That gout is a disease depending on a redundancy of blood with relation to the powers of the circulation, particularly affecting the system of the vena portarum, and the consequent functions of the liver; together with the production of a morbid change in the secreting functions of the alimentary canal in general, and of the kidnies in particular."—p. 123.

The formation of uric concretions, our author conceives, does not necessarily require "an active inflammatory action of vessels," or acute state of gout. He thinks also, that when it does occur, "the capillary vessels of the part affected with gout may act *vicariously*, in a greater or less degree, to the secreting vessels of the kidney." In some instances in which there were concretions both on the hands and feet, uric acid was almost totally absent from the urine. He thinks the circumstance of ligaments, the sheaths of tendons, and aponeuroses, being more frequently the seat of gout, is the reason why the local affection rarely terminates in suppuration. In the

only case of gouty abscess which he has seen, "the purulent secretion was formed wholly in the common integuments;" and the result was modified by an attendant secretion of urat of soda. Neither does gouty inflammation produce coagulable lymph, the thickened state of parts being referable to "a change of structure in the ligaments, the bursæ, and the tendinous sheaths; and also from the morbid secretion of the two last textures."

Gouty inflammation, "when attended with severe pain," produces, according to Dr. Scudamore's observations, a much stronger sensation of heat in the affected part, in relation to the real quantity evolved, than is occasioned by rheumatic inflammation: to illustrate which fact some experiments are detailed, from which it appears, that the sensation of heat in gouty inflammation "corresponds rather to the degree of pain which is present, than to the thermometrical temperature of the affected parts."

After pointing out the diagnostic characters by which gout may be discriminated from rheumatism, erysipelas, and phlegmon; and the symptoms on which a prognosis may be formed; our author proceeds to the consideration of the more important part of his subject, the treatment of the disease.

In taking a general view of *the treatment of gout*, Dr. Scudamore with much reason condemns Sydenham's prohibition against any interference in the paroxysm; an opinion which unfortunately too long swayed the practice of his successors.

"I would assume it therefore," adds he, "as a principle, that we should attempt the prevention of a fit of gout, if warned of its approach, and interrupt its progress when formed, *unless* such a state of the constitution exist, that the gout has taken the place of another more serious disease, or may be expected to prevent one which is threatening, and more to be dreaded than itself."—p. 146.

The detail of the treatment commences with that of the *premonitory symptoms;* which, if the inflammatory diathesis be present, are to be combated by bleeding; by promoting the hæmorrhoidal discharge, if there be any tendency to it in the constitution; and removing costiveness by active purgatives; in conjunction, if heartburn and other symptoms of dyspepsia

exist, with the administration of an ipecacuanha emetic. When the secretions remain in a vitiated state, small unirritating doses of mercury, bitter aperients and alkalies, with careful moderation in diet, horse and foot exercise, country air, and changing all the *lædentia* for the *juvantia*, are the remedial means to be pursued.

Before proceeding to describe *the treatment of the paroxysm*, our author offers the following prefatory admonition:

"In our choice of remedies for the particular symptoms which appear in every individual case, we should reflect upon the kind and degree of the predisposing and exciting causes, by which the fit has been introduced; and our practice should be relative to such consideration, as well as to the age, constitution, and temperament of the patient."—p. 148, 149.

He then proceeds to detail the treatment under the heads "of the several remedies which" he has "thought most deserving of attention." We propose to follow him through this arrangement.

Bleeding.—With regard to the employment of the lancet in the paroxysm of gout, our author agrees with the opinion of the best practitioners, that although when circumstances, as cold and wet, or excess, have occurred to render the inflammatory diathesis more permanent, bleeding is the proper remedy; yet, it "is not allowable with the same freedom as in the other phlegmasiæ." When it is proper, however, "its early employment is a point of much importance:" but although the degree of the general inflammatory action, and the effect produced, must necessarily regulate the quantity to be abstracted, and the repetition of the venesection, yet, we are told, "it should be in relation to the powers of the individual rather than to his age;" a remark, which we believe is as applicable to every other form of disease as to gout. When there are marks of congestion in the hepatic or cerebral circulation, "ample local cupping is to be preferred to the lancet."

Emetics.—The experience of our author does not induce him to advise their employment, except when the stomach is loaded with acid or other irritating matters; yet, a very striking instance is detailed of the good effects of one which was exhibited in the commencement of the attack.

Cathartics and Diuretics.—"On the choice and free employment of these" we are informed the successful treatment of the paroxysm chiefly depends. This action particularly unloads "the vessels belonging to the system of the vena portarum;" and the efforts of Nature to remove redundant matter are assisted, by their stimulating to increased action at the same time the exhaling [excreting] vessels of the alimentary canal, and the secreting functions of the kidnies. Although, under certain limitations, Dr. Scudamore regards elaterium to be a medicine as useful as it is purgative, yet his own experience leads him to prefer calomel joined with antimonial powder, compound extract of colocynth and soap; and where a combined and continued action upon the bowels and kidnies is required, magnesia and sulphate of magnesia, conjoined with acetum colchici. He gives the latter combination at intervals, so as to procure from four to six stools in twenty-four hours, "until the fæces and urine acquire healthy characters; and the tongue becomes clean and moist; and adds,

"This preparation of colchicum, joined with direct purgatives, has never disappointed me in its effect, either to *assist* the other ingredients in the production of watery evacuations from the bowels, or to increase the urine abundantly, or both."—p. 156.

Mercurial Preparations.—Mercury, in small doses, combined with antimonials, or in a full dose with purgatives, produces excellect effects; but when exhibited so as to produce mercurial fever, or irritation, it proves extremely injurious. Three cases are noticed illustrative of this fact.

Dr. Scudamore next adverts to a few of those remedies that swell the ample list of *pretended specifics*, which have had the greatest share of popular estimation. The *tincture of Hellebore and Opium* he has seen injurious in several cases; in one it even apparently brought on apoplexy; and he thinks that, in any form of combination, hellebore "should be intirely deprecated as a remedy for gout." From *Gratiola* he has not obtained any satisfactory results, and is rather inclined to think it an inert medicine: and, although he speaks favourably of the *acetum Colchici;* yet, of both the powder and tincture he observes, "from neither have I been able to trace the

smallest *specific* operation; on the contrary, the stomach was irritated," and an increased fur of the tongue with thirst induced. Our own experience accords with this observation. Of the *eau medicinale* he speaks more at length. From the result of some experiments on the preparations of Hellebore and laudanum, the tincture of Colchicum, and that of Gratiola, he does not give credit to any of the supposed discoveries of its composition; and his own experience of its effects as a medicine enables him to state, that, although at first "it proves in most instances a powerful palliative or short cure, yet, it ultimately insidiously leads to a train of subsequent evils, an impaired condition of the nervous system, weakened digestion, and indolent bowels;" while "the limbs, especially the parts affected in the paroxysm, suffer for many weeks with tremblings, numbness, and coldness, and commonly with tedious œdema." He adds, "it may with truth be stated, that sooner or later, in proportion as it is freely employed, it leads to a broken state of health." We cannot from our own experience speak of this remedy; but, although our author supports his opinion by the high authority of Dr. Gregory, and we are averse from supporting any thing which favours of quackery, yet justice obliges us to state, that we know several instances in which it has been productive of the most salutary effects, and where it continues to prove beneficial, notwithstanding the long continued employment of it.

Peruvian Bark.—The favourable testimony of Dr. Tavares and Dr. Small of the effects of bark; and Dr. Held's eulogy—"uno verbo, cortex peruvianus in podagra *divinum est remedium*," have not induced Dr. Scudamore to make trial of this medicine. *Sudorifics*, he thinks, should be given with caution; as the powerful relaxation of the skin increases its susceptibility "to changes of the atmosphere at the period of convalescence, and the consequent danger of relapse."

Narcotics.—Nothing so soon or so effectually relieves the pain of gout as opium; but its beneficial effects are altogether "dependant on the manner of its use, both as to preparation and dose:" and as a general rule, our author observes, "any inflammatory diathesis, and a constipated state of bowels, should be removed previously to its administration." The following is our author's method of employing this remedy:

"The patient, being furnished with twelve pills, each containing one grain of *crude* opium and half a grain of antimonial powder, may be desired to take one, two, or, if pain be very severe, even three, at bed-time, as the first dose, and repeat one every hour or two afterwards, according to the degree of pain; this being the only regulation as to the quantity to be employed, when no contra-indications are present."—pp. 170, 171.

Now we see no objection to this mode of exhibiting the opium; but of what use the antimonial powder can be in half grain doses, we cannot conjecture. When, from peculiar idiosyncracy opium disagrees, Dr. Scudamore recommends the use of henbane; but he justly places little dependance on *humulus lupulus;* indeed the experiments of Dr. Bigsby* are sufficient to raise doubts of the utility of this preparation in any case.

Some excellent rules are laid down for the regulation of *diet and bodily exertion*, the latter of which, cautiously employed, even in the paroxysm, counteracts in a great degree the consequent stiffness, debility, and lameness.

In detailing the *local treatment* in the *paroxysm*, the same method is adopted as in the history of the constitutional treatment, our author's opinions being separately delivered under the head of each remedy. He does not recommend the employment of *leeches*; and even adds, that their indiscriminate use "in gouty inflammation is by no means innocent;" nor does he appear to think more highly of opening the distended veins near the inflamed part. Of the effects of *vesicatories and irritants* he has had no experience: external *warmth*, he thinks, worse than useless; and prefers sponging with tepid water to *poultices*, as commonly employed, to the *pediluvium* or *the muriatic acid bath*, which in one case he found productive of an aggravation of pain and inflammation. He enters fully into a refutation of the practice revived by Dr. Kinglake, on "the narrow principle," as he properly terms it, "of considering the gout as a local disease;" and lays it down as an axiom, that the local treatment, although not to be neglected, yet, is

* Vide Repository, vol. iv. p. 287.

always to be regarded as of secondary importance. Instead of cold water therefore, he recommends the following lotion, which he has employed in forty cases with the best effects; and without ever occasioning any metastasis of the inflammation:

℞ Alcoholis ℥viii.

Misturæ camphoræ ℥xiv. M.—Fiat lotio, modice tepefacta ab additione paululæ aquæ calidæ, et partibus affectis constanter adhibeatur.

The temperature of this application should not be under 75°, nor exceed 85°; for if "either hot or cold, the intention of the remedy is frustrated." It should be applied by means of a linen compress consisting of several folds; "and the slightest and coolest covering should be superincumbent."

With regard to the state of *convalescence*, Dr. Scudamore with much propriety remarks, that "careful regimen, both as to diet and exercise, early hours, and a due regulation of the bowels," so as to restrain the return of plethora, more frequently constitute all that is requisite to re-establish sound health. But when the debility is such as to require the use of tonics, he recommends the ammoniated tincture of iron in conjunction with the compound aloetic powder and soap; or a *corrective* tonic, composed of a combination of columba, cascarilla, and rhubarb, with carbonate of soda. As an alterative, he prefers the pilula hydrargyri submuriatis composita, in a dose of five grains every other night, to the blue pill; and when œdema and weakness are considerable after the perfect removal of the inflammation, he considers the use of a flannel or calico roller "of essential importance; combined with tepid sponging and friction, either with the dry hand or the flesh brush, or assisted with a stimulant liniment."

In illustration of the principles of practice, the sketch of which we have just concluded, nine cases are detailed. In all these the symptoms are accurately and fully described; and the practice adopted displays considerable judgment, and a mind well adapted for seizing those circumstances in the train constituting the disease, the removal of which are the most likely to pave the way to returning health.

The next object of Dr. Scudamore's inquiries, is "the

means of preventing the return of gout, or *the prophylactic regimen;*" which he examines under three heads, or "what relates to the general management, diet, and the occasional use of medicine."

Under the first head he observes, that in the choice of residence, "a gravelly soil in a middling level, protected from the north and the east wind, should be selected." As to clothing, flannel should be worn next the skin, at least eight months of the year; the feet in particular should be kept warm; but at the same time *hot covering* is justly deprecated. Cold bathing he regards as of doubtful efficacy, but recommends a bath of the Buxton temperature; adding,

"From well established experience I can confidently advise, as equally safe and useful, the following daily practice, of which indeed, although I have already spoken, I shall now dwell more at length: sponge every morning the whole of the feet, between the toes, all round the ankle joints (and the knee joints also, if they have been the seat of the complaint), with salt water, or water in which salt is dissolved, in the proportion of a table spooonful of salt to a pint of water; care being taken, that the *chill* of the fluid be always just removed by the addition of a sufficient proportion of warm water.

"The skin being wiped perfectly dry, diligent hand rubbing (the best kind of flesh brush) should be employed for as long a time as is convenient; and should invariably be continued, until a sensible glow of the skin is produced. In the whole process, one part should be finished before another is begun, lest evaporation should take place from the moistened surface in an unfavourable degree."—pp. 244, 245.

The importance of both horse and foot exercise in the country; of regular hours of rest, the daily quantity of which should not exceed eight hours; of cheerfulness and serenity of mind; and of a moderate exertion only of the intellectual faculties, avoiding severe study; is pointed out and ably enforced.

With regard to diet, Dr. Scudamore thinks the "rule of abstinence has been too much insisted upon for the gouty, and that little is often performed, because too much is required."

Experience of what agrees with the habit must determine the quality of the food which is to be preferred; but error in quantity must be rigidly avoided. Animal food should be eaten once only in the day, and cooked in the simplest form, as the niceties of cookery not only provoke to a larger meal than is proper, but the stomach also becomes over excited "by the varied nature of the stimuli." The details on this part of the subject are correct and sufficiently minute; but we fear the advice of the Physician, like that of the Moralist, will continue to make but an evanescent impression, when opposed by the enjoyments of the festive board, the allurements of luxurious indolence, and the various fascinations of sensual gratification; since even the severe remonstrances of frequently renewed pain fail to admonish those, who, in the lapses of their sufferings, exclaim with the poet, "Vitam faciunt Balnea, Vina, Venus."

Among the various articles of animal nutriment, our author justly prefers that which has little fat and the greatest share of muscular fibre, as it is this part "that affords the best stimulus to the stomach, and the most favourable material for digestion." We were amused with the following piece of information, which is quite new to us:

"I learn, however, from good authority, that pork broth (quite free from fat) agrees remarkably well with very weak stomachs."—p. 256.

Salmon is stated to be the most unwholesome fish, and next to it is mackarel. Shell fish, also, is said to be hurtful; but we must refer our readers to the work itself for further particulars regarding injurious articles of food.

We accord with the opinion of Dr. Scudamore, that although fermented liquors are to be condemned, yet that the very habits which produce gout, occasion a state of stomach in the gouty, which renders "the moderate use of wine both useful and necessary;" but we must dissent from the remark, that "in determining the exact quantity most favourable to the patient, a careful attention to his own feelings will be a sufficient guide; the object being this, that the wine should produce a feeling of comfort, without any sensible heating excitement."—p. 260.

It would indeed be difficult to conjecture what some men would consider "a feeling of comfort," in this respect.

The prophylactic medicines are chiefly warm aloetic purgatives, alkalies, and alkaline earths; the latter of which our author regards as useful, only inasmuch as they serve "to amend any wrong process in the secreting action of the kidney." He adds some judicious observations on tonics; and concludes the part of his work which refers to *Acute Gout*, by the detail of some experiments made by Mr. Astley Cooper on digestion, which were related in his lectures delivered two years ago at the Royal College of Surgeons.

Having finished the consideration of acute gout, Dr. Scudamore enters upon that "*of Chronic Gout.*" This form of the disease, we are informed, although seldom, yet occasionally occurs "in subjects in whom the acute form has never existed." It is more frequent "among women than men;" and, instead of the great toe, the seat of the swelling and pain is "the hand or wrist, or instep, and about the ankle;" but when it occurs as a sequela of acute gout, the parts originally inflamed "continue affected alternately or in conjunction." The redness, if any, is paler and more transient than in acute gout; and the bursæ and tendons are the parts most affected. The dyspeptic and hypochondriacal symptoms are very severe, being frequently attended with a chronic cough, always with great irritability of temper; and in the worst instances, a general *cachexy* takes place; all "the secretions becoming more or less vitiated; and the excretions irregular." In this state of the frame, any internal disease which is casually produced, assumes a modification more or less remarkable, in consequence of the gouty diathesis, an occurrence very apt to confuse and perplex the practitioner.

With regard to the causes of chronic gout, as it is merely a modification of acute gout, our author is of opinion, "that the difference in the agency of the remote causes" depends on the particular state of the constitution; languor and debility prevailing when the chronic form arises. A first attack of gout seldom assumes the chronic form, unless in advanced life, when there is a plethoric state of the system, joined with much debility; or in females of weak constitutions heredita-

rily predisposed. Dr. Scudamore conceives that the *eau medicinale* "has been the fruitful source of many cases of chronic gout."

In forming a *diagnosis*, the disease from which chronic gout is most difficult to be distinguished, is chronic rheumatism. The characteristics on which our author chiefly relies, are the greater derangement of the natural functions, and the greater degree of œdematous swelling when the foot or hand is affected in chronic gout. He conceives that although "the general disorder may often partake of rheumatism," and the two diseases may exist "in different parts of the body at the same time," yet that the gouty and rheumatic inflammation cannot exist in *the same part*. Chronic gout is more easily distinguished from nodosity of the joints.

In discussing the treatment of chronic gout, Dr. Scudamore arranges his subject under three distinct heads: The *first*, which supposes a debilitated constitution unequal to the production of an acute fit of gout, requires that "our indications be chiefly derived from the state of the chylopoetic viscera," and of the secretions. The remedies recommended are purgatives and soothing narcotics at bed-time; such, for example, as "five or seven grains of Dover's powder, or three quarters of a grain of opium, with a grain of antimonial powder;" or if the surface be not heated, the black drop, the effects of which our author has found in some instances "peculiarly satisfactory." The local treatment should be the same as in acute gout, with the after-addition of friction and a bandage. The other means consist of a combination of purgatives and tonics, such as are indicated in dyspepsia; but the use of simple tonics is judiciously advised to be postponed "until the secretions are rendered perfectly healthy." The *second* refers to that impaired state of constitution which is produced by repeated invasions of acute gout, and in which "the chronic diseased action alone can take place." In this state we are told, the purgative plan requires to be longer continued, the state of the secretions being the guide; and afterwards the tonic mode of treatment pursued. Local congestions, which were likely to occur, should be relieved by cupping; and even when spasmodic or nervous symptoms require the use of ammonia or

æther, and similar palliatives, these remedies should be cautiously employed. In weakened habits, where gout is suspected, although it has not yet existed, it is too common to invite, as it were, a fit; a practice which Dr. Scudamore severely and justly reprobates.

"It is often hurtful," he adds, "and sometimes hazardous, to excite a weakened circulation into strong action; and it cannot be denied that the active means which are thus injudiciously adopted to urge the gout, may produce, instead of it, an apoplexy. I apprehend that the true method of treatment, on the occasions to which I have alluded, consists in a regular and persevering attention to the chylopoetic functions, both by means of medicine and regimen."—p. 298.

The *third* head treats of the mode of managing those local changes of structure arising out of repeated attacks of acute gout, and with which rheumatism is often blended. In these cases a narcotic and sudorific plan is recommended, with tepid bathing, particularly the Buxton bath. When contractions occur, Dr. Scudamore is of opinion, that friction, according to Mr. Grosvenor's plan, "constitutes the only remedial method which can reasonably promise success." If the lower extremities are affected with œdema, the support of a roller is absolutely necessary; with the addition of soap plaster spread on leather, where the bursal distensions are tender and painful; and this plan, in conjunction with frictions and sponging, is regarded by our author as even much more useful in gouty enlargements of the joints than repeated blistering. After giving the history of two cases of chronic gout, this part of the treatise is concluded "by a brief discussion of the treatment of *gouty concretions;*" in the early state of which, as an external application, Dr. Scudamore extols a "dilute solution of pure potass in almond emulsion," to be applied by means of friction two or three times a day; and as a constitutional remedy, a combination of magnesia and pure potass; but, as the Doctor admits, it is "very doubtful whether any medicine will be found to have a specific operation as chemical agents" on these concretions.

We have already entered so much into details, that we can do little more than notice a few of the leading points in the sec-

tion on *Retrocedent Gout*. The exciting cause of this form of the disease is correctly stated to be "sudden vicissitude of temperature applied to the body generally; or cold, more or less continued, offered to the affected parts." Hence the danger, in some constitutions, of the revived practice of applying cold water to the extremities during the paroxysm even of acute gout. Cullen, and others, have taught, "that debility and spasm, and not inflammatory action, seize the internal organ in the case of retrocedent gout:" our author maintains the opposite opinion, in which we fully concur. Agreeably to this opinion also, he opposes the usual stimulating mode of treatment; instead of which he recommends, if indigestible food be the cause of the retrocession, first, to clear the *primæ viæ*, both by vomiting and purging; and then, if violent pain still continues, to exhibit without hesitation from forty to eighty drops of tincture of opium; taking care that the re-action which may follow on its abatement, do not arise to inflammation. If exposure to cold, however, be the exciting cause, we are desired to abstract sixteen, twenty, or thirty ounces of blood from the arm, to treat the inflamed bowels as in ordinary enteritis, and to divert the diseased action again to the extremities, by sinapisms, warmth, and other topical stimulants; and should the brain be the part affected, the same means must be resorted to as in apoplexy. Three cases are detailed illustrative of this practice.

Dr. Scudamore concludes his treatise with some general, yet highly interesting observations on the diseases connected with the gouty diathesis; and on the safety and importance of a free use of the lancet as a remedy in gout. The remainder of the volume is filled up with an Essay on Rheumatism; but as the author offers it only as "the sketch of a brief and general outline" of a subject which he reserves for a future volume, we also shall reserve any observations we might feel disposed to make upon it, until it appears in a more finished form.

We must acknowledge, that the performance of our critical duties have seldom been productive of so much satisfaction, as we have received in drawing up our analysis of this volume: and we have little hesitation in affirming, that whether we

regard the matter generally, the arrangement, or the talent for useful practical observation which it displays, it is, in every respect, highly creditable to the author. It is undoubtedly the most scientific work on gout that has appeared in our time. With regard to the execution, as far as mere authorship is concerned, although we must allow that the language is in general correct and the style perspicuous, yet it is our duty to notice, that a few instances of inaccurate expression and bad taste occasionally caught our eye: such, for example, as the following indefinite sentence,—"a notice of many days or even longer," p. 18:—and "a mild gout took place," meaning a mild attack of gout, p. 21:—whilst in page 193 we find the following barbarous expression, "illy tolerates." Among the typographical errors, which are indeed few, we observe, in the table of first attacks, that the number occurring between fifty and sixty years of age is stated to be sixty instead of three. But these are very venial errors; and while we willingly admit that the texture of the garment is excellent, we may add, in the language of our old friend Horace,

"Non ego paucis offendar maculis."

Cases of Diseased Bladder and Testicle, illustrated with Etchings. By WILLIAM WADD, Surgeon. 4to. pp. 72. London, 1815.

[From the London Medical Repository, for October, 1816.]

THIS is not the first time that Mr. Wadd has appeared before the public as a writer on subjects connected with his profession. The present performance, however, principally claims our attention for the novelty of its illustration; the plates being wholly executed by the author, some of which are admirable specimens of the effect capable of being produced by the etching-needle; and as they all bear the date of the same year, they must be considered as very creditable proofs of industry and talent. The intention of the author will be best explained by the preface:

"The study of Surgery has been greatly facilitated by the introduction of Engravings to illustrate morbid changes. Preparations, wet or dry, however beautifully executed, are, from the time of their completion, gradually losing their value, by loss of colour, change of figure, and even from the very delicacy of their materials. Add to this, their utility is much lessened by the circumscribed spot, in which only they can be examined. In the circle of the theatre they relieve the lecturer, but arrive at many of the hearers, when the subject for which they were introduced is passed, and from that period can be only imperfectly recollected, if they are not entirely forgotten. Engravings, on the contrary, may be multiplied to any number; and whilst morbid preparations require a constant interpreter, these are always accompanied with minute explanatory references.

"It must however be admitted, that inaccuracy in the figure, or reference, may be productive of errors, of which the common artist, taught only to study effect, is a very imperfect judge. Hence the difficulty of procuring satisfactory anatomical representations, even from the ablest masters.

"The early habit of pencilling morbid appearances, of sufficient interest to deserve notice, has by degrees furnished the author with a large collection of drawings. Of these, when, in compliance with the wishes of his medical friends, he has been desirous of offering to the public a selection of the most interesting, he has always been discouraged by the difficulties above mentioned. On this subject he had frequent conversations with his friend Mr. Hills, whose philosophical pursuits and pre-eminent talents as an artist are well known. This gentleman not only advised the author to undertake what it would be difficult to explain, or correct in others, but as a further encouragement, offered his own instructions, to enable him at once to secure and multiply the productions of his pencil, by means of the etching needle. Such a proposal, from one who, unrivalled in the peculiar department of his art, has, in the execution of a work representing the character of living animals, surpassed the productions of this or any other country, was eagerly adopted, and may serve as an apology for the attempt."—p. vii, viii.

The first part contains nine plates, exhibiting the morbid appearance of diseased bladder and prostate, each plate being accompanied with a short history of the case during life. It commences with specimens of calculi in the ducts and substance of the prostate gland. In these cases small portions of gravel had been passed; there was constant irritation above the neck of the bladder that admitted of no alleviation, nor could the catheter be introduced.

Next we have enlargements and ulcerations of the prostate, in some instances with thickening of the muscular coats of the bladder, the internal membrane forming sacculi containing small stones; and also a case where an uncommon thickening and contraction of the bladder arose from strictures in the urethra. A case is likewise related, where a life of abandoned profligacy was terminated by a frightful specimen of disease. A mass of malignant fungus covered the whole nates; while in the perinæum, scrotum, and groin, numerous fistulæ were formed, through which the urine passed in all directions. The plate of urinary calculi is very interesting, as it exhibits an outline of two of the largest ever known to have been found in the human bladder in this country. A case is also detailed, where a small calculus was extracted from the urethra by an incision in the perinæum.

In the illustration of the fifth plate, the author takes an opportunity of enlarging on the utility and importance of injecting the bladder, which he regrets is not more frequently resorted to, as he never saw it once applied during many years' attendance at St. Bartholomew's Hospital: and he has seen many instances in which he believes "life could not have been sustained without it." His experience certainly bears very favourable testimony to its beneficial effects. On the subject of puncturing the bladder, he decides for puncturing through the rectum, which seems, indeed, to be the mode now generally adopted by practitioners.

The second part of the work relates to diseases of the testicle, the successful treatment of which illustrates very satisfactorily the opinions of the late Mr. Ramsden. Plate 14 exhibits the section of a testicle enlarged and indurated with a fungus arising from the body of the glandular substance. This

seemed to originate from hernia humoralis, which was produced by the imprudent injection of a solution of the sulphate of zinc, and was also connected with strictures and an irritable urethra. By the use of efficient means for the removal of the latter symptoms, the testicle was speedily reduced in size; but before the part was in a state to admit of caustic being applied to the fungus, the patient died from pulmonary hæmorrhage.

The chapter on hydrocele contains much practical information; and the author very opportunely pays a just tribute to the fame of his master, Sir James Earle, for the introduction of "one of the most perfect operations in surgery;" viz. the cure of hydrocele by injection.

"Whilst I had the honour of visiting with Sir James Earle, there was scarcely an operation of any kind performed by him, at which I was not present; and as to Sir James we owe the fortunate revival of this important operation, with its present improvement, it will be supposed that the cure of the hydrocele by the injecting the tunica vaginalis testis, made a very considerable part of his practice, and gave me an opportunity of seeing it under every form. In some cases after caustic, seton, incision, external applications, and other operations have failed, and even where the injection had been previously tried by others less acquainted with the practice, he was fortunate enough to succeed.

"The only instances of failure were two cases, in which an attempt was made at a further improvement in the operation; and a third wherein no irritation was produced, in consequence, as it was supposed at the time, of the servants having diluted the wine. Each of these were cured by a second operation shortly afterwards. Whether even this was necessary cannot now be ascertained, but it is by no means certain.

"'The proper object,' says Sir James Earle, 'of all operations for the radical cure of the hydrocele, is to produce such an adhesion of the distended vaginal coat of the testis with the gland, or such a consolidation of contiguous parts, as shall annihilate the cavity, in which the water constituting this disease is contained.' The same is Mr. Pott's language. 'The cure is accomplished merely by the coalescence of the tunica

vaginalis with the tunica albuginea;' and Mr. Sharp, in his Critical Enquiry, tells us, that, 'upon examination of several hydroceles after cure, it appeared evidently it was wrought by an universal adhesion of the testicle to the tunica vaginalis.' Such, I believe, were the sentiments of every surgeon of eminence, till Mr. Ramsden ventured to dissent from the established doctrine; asserting that the obliteration of the cavity of the tunica vaginalis testis was not essential to the cure, and that it did not happen unless the curative process had been carried to unnecessary severity.

"Among my notes, is a memorandum which very much confirms Mr. Ramsden's opinions. A gentleman underwent the operation in May 1799. He left town at the end of June. The beginning of July he stated by letter that the hydrocele had returned as large as before the operation; and in the middle of the next month, he wrote word that it had entirely disappeared. The operation had therefore excited a new action in the parts, and though the effusion of fluid had returned, yet the absorbents had recovered their function.

"That adhesion takes place between the tunica vaginalis and testis, where there has been a certain degree of inflammation, has been repeatedly demonstrated; and that it is the general effect of the usual mode of injection; but if the cure can be accomplished by less irritation, and without any change in the parts from their original formation, many might be inclined to undergo it, who would not be willing to hazard an operation under any other circumstances.

"Mr. Ramsden has not confirmed his theory by dissection; but brings abundant proof of transparency in the scrotum after the operation, and on that fact its validity chiefly rests. He attached great importance to the ascertaining the transparency of hydrocele, and in all cases made it his first object of inquiry, thinking that the surgeon who neglected this 'grand characteristic,' gratified his vanity at the risk of his patient's security.

"The usual injection is two parts wine to one of water; or if the tunics are thin, the testicle enlarged, or any circumstance requiring caution, it is made of equal parts, wine and

water. Even the latter proportion is sometimes productive of considerable pain and tumefaction.

"With a view of following Mr. Ramsden's plan of curing by only exciting a new action, with as little pain as possible, I have so lessened the quantity of wine, that the irritation produced has been such as not to detain the patient at home, after the day on which it was used; and I am inclined to think that very little irritation of the sacculus is sufficient for the cure of most hydroceles, that do not exceed half a pint in the quantity of fluid, nor six months from their first appearance."—p. 48—52.

In the conclusion Mr. Wadd gives two very excellent specimens of the hernia congenita, and describes somewhat at large the peculiarities of the testicle.

This work must be considered as a valuable record of important facts and observations relative to a class of diseases that are "among the most distressing of those which do not necessarily shorten life." The practice of taking sketches of morbid parts, and registering facts connected therewith, ought to be assiduously cultivated by all who are desirous of contributing to the advancement of surgical knowledge. Were this more frequently resorted to, a mass of valuable data would be accumulated, that might hereafter serve, when digested and methodized, to throw light upon some of those obscure cases that in every practice must occasionally occur. We cannot but applaud Mr. Wadd' s very commendable attention to this important point, and we hope at some future time to see more of the contents of his port-folio and memorandum book.

ORIGINAL PAPERS.

Three Cases of Extirpation of diseased Ovaria.

By EPHRAIM M'DOWELL, M. D. of Danville, Kentucky.

In December 1809, I was called to see a Mrs. Crawford, who had for several months thought herself pregnant. She was affected with pains similar to labour pains, from which she could find no relief. So strong was the presumption of her being in the last stage of pregnancy, that two physicians, who were consulted on her case, requested my aid in delivering her. The abdomen was considerably enlarged, and had the appearance of pregnancy, though the inclination of the tumor was to one side, admitting of an easy removal to the other. Upon examination, per vaginam, I found nothing in the uterus; which induced the conclusion that it must be an enlarged ovarium. Having never seen so large a substance extracted, nor heard of an attempt, or success attending any operation, such as this required, I gave to the unhappy woman information of her dangerous situation. She appeared willing to undergo an experiment, which I promised to perform if she would come to Danville, (the town where I live) a distance of sixty miles from her place of residence. This appeared almost impracticable by any, even the most favourable conveyance, though she performed the journey in a few days on horseback. With the assistance of my nephew and colleague, James M'Dowell, M.D., I commenced the operation, which was concluded as follows: Having placed her on a table of the ordinary height, on her back, and removed all her dressing which might in any way impede the operation, I made an incision about three inches from the musculus rectus abdominis, on the left side, continuing the same nine inches in length, parallel with the fibres of the above named muscle, extending

into the cavity of the abdomen, the parietes of which were a good deal contused, which we ascribed to the resting of the tumor on the horn of the saddle during her journey. The tumor then appeared full in view, but was so large that we could not take it away entire. We put a strong ligature around the fallopian tube near to the uterus; we then cut open the tumor, which was the ovarium and fimbrious part of the fallopian tube very much enlarged. We took out fifteen pounds of a dirty, gelatinous looking substance. After which we cut through the fallopian tube, and extracted the sack, which weighed seven pounds and one half. As soon as the external opening was made, the intestines rushed out upon the table; and so completely was the abdomen filled by the tumor, that they could not be replaced during the operation, which was terminated in about twenty-five minutes. We then turned her upon her left side, so as to permit the blood to escape; after which, we closed the external opening with the interrupted suture, leaving out, at the lower end of the incision, the ligature which surrounded the fallopian tube. Between every two stitches we put a strip of adhesive plaster, which, by keeping the parts in contact, hastened the healing of the incision. We then applied the usual dressings, put her to bed, and prescribed a strict observance of the antiphlogistic regimen. In five days I visited her, and much to my astonishment found her engaged in making up her bed. I gave her particular caution for the future; and in twenty-five days, she returned home as she came, in good health, which she continues to enjoy.

Since the above case, I was called to a negro woman, who had a hard and very painful tumor in the abdomen. I gave her mercury for three or four months with some abatement of pain; but she was still unable to perform her usual duties. As the tumor was fixed and immoveable, I did not advise an operation; though from the earnest solicitation of her master, and her own distressful condition, I agreed to the experiment. I had her placed upon a table, laid her side open as in the above case; put my hand in, found the ovarium very much enlarged, painful to the touch, and firmly adhering to the vesica urinaria and fundus uteri. To extract I thought would be instantly fatal; but by way of experiment I plunged the scalpel into

the diseased part. Such gelatinous substance as in the above case, with a profusion of blood, rushed to the external opening, and I conveyed it off by placing my hand under the tumor, and suffering the discharge to take place over it. Notwithstanding my great care, a quart or more of blood escaped into the abdomen. After the hemorrhage ceased, I took out as clearly as possible the blood, in which the bowels were completely enveloped. Though I considered the case as nearly hopeless, I advised the same dressings, and the same regimen as in the above case. She has entirely recovered from all pain, and pursues her ordinary occupations.

In May 1816, a negro woman was brought to me from a distance. I found the ovarium much enlarged, and as it could be easily moved from side to side, I advised the extraction of it. As it adhered to the left side, I changed my place of opening to the linea alba. I began the incision, in company with my partner and colleague Dr. William Coffer, an inch below the umbilicus, and extended it to within an inch of the os pubis. I then put a ligature around the fallopian tube and endeavored to turn out the tumor, but could not. I then cut to the right of the umbilicus, and above it two inches, turned out a scirrhous ovarium, (weighing six pounds) and cut it off close to the ligature, put round the fallopian tube. I then closed the external opening, as in the former cases; and she complaining of cold and chilliness, I put her to bed prior to dressing her—then gave her a wine glass full of cherry bounce, and thirty drops of laudanum, which soon restoring her warmth, she was dressed as usual. She was well in two weeks, though the ligature could not be released for five weeks; at the end of which time the cord was taken away; and she now, without complaint, officiates in the laborious occupation of cook to a large family.

On the Use of Alkaline Caustic in Tetanus.

By JOSEPH HARTSHORNE, M. D.

In August 1814, a man affected with tetanus, induced by a wound of the knee joint, became my patient in the Pennsylvania Hospital. Large doses of opium had been given by the physicians, who attended him before his admission. The use of opium was continued—Æther, brandy, ext. of stramonium, calomel, in large doses, were also exhibited; and after covering the wound with adhesive plaster, a large blister was applied to the knee. These remedies afforded a temporary relief; but the spasms soon after became so violent, particularly in the muscles of the glottis, as to threaten the instantaneous destruction of life. Under these circumstances, I determined to apply the alkaline caustic over the cervical vertebræ, with a view of influencing the muscular system, through the medium of the spinal marrow. In less than two hours after this application, a diminution of all the symptoms of tetanus took place. After a painful confinement of 5 or 6 months, in consequence of inflammation of the knee joint, the man entirely recovered.

As my experience in the use of this remedy in tetanus, is very limited, I would feel more hesitation in recommending it, if the proofs of its efficacy depended solely on the few cases, which have fallen under my immediate notice. I have the pleasure of offering as additional evidence in its favour, the following extract of a letter from Dr. Tristram Thomas, an eminent practitioner in Easton, Maryland, to my friend Doctor John W. Moore, of this city.

"*Easton*, 27*th Oct.* 1816.

"I have long intended to communicate the result of the application of the caustic alkali, suggested by you, in the case of a tetanic patient I had under my care, when you were last in Easton, (Aug. 1816.)

"All the remedies usually recommended in tetanus were

employed in their full extent. Sixty drops of laudanum every two hours, Madeira wine, mercurial ointment, &c. were all jointly used. These remedies made no impression on the disease, which was evidently gaining ground. On the 4th day, I made the application of the caustic alkali to the cervical vertebræ; I rubbed it pretty firmly for a few minutes in an oval form, about two and a half inches in length, and one and a half in breadth. The patient complained of great heat and burning, as if coals were applied to the part. I covered the eschar with a pledget of soft ointment, and ordered her to bed; she had previously taken 80 drops of laudanum. The effect was really delightful; the new action excited by the alkali, destroyed completely the morbid action in the system—the spasms instantly ceased, and in one hour, she appeared free from disease; she could open her mouth, and deglutition became free and easy. She was soon up and able to attend in some degree to her business, and never after complained of pain or uneasiness, except from the issue, which remained for several weeks very sore."

Case of Gun-shot Wound, where a musket ball was lodged in the posterior part of the neck, and subsequently discharged per Anum. Communicated by Dr. Wm. H. Hening, late Surgeon in the army of the U. States.

In the campaign of 1814, a strong detachment of the British army having crossed the Niagara river, moved towards Buffalo, with the intention of destroying the stores deposited at that place, for the use of the American army, then at Fort Erie, on the Canadian side. Anticipating the designs of the enemy, he was met by a detachment of the 1st Regiment of Riflemen, under the command of the late gallant and much to be lamented Major L. Morgan, on the banks of the Conjockita creek, where an action ensued, highly creditable to the prowess of our arms. In this action, Lt. ———, a gallant young officer, while in the act of conveying an order, received a wound from a musket ball in his neck. It entered on the right side, nearly

on a line, and midway between the angle of the lower jaw, and the middle of the cervical vertebra, passing from before, backwards. Ineffectual attempts were made to discover the ball with the probe. The right arm became extremely painful and finally paralytic. Deglutition was attended with much uneasiness, and could only be performed in an upright position. The wound terminated in a fistulous opening, discharging considerable quantities of pus, and occasionally spiculæ of bone. Distressing cough and violent paroxysms of pain in the neck and arm harassed the suffering patient. Obstinate constipation and pain in the bowels, was not among the least of his sufferings. As it could not be determined where the ball had lodged, and as the delicate, and important parts concerned, precluded the idea of searching for it, little more was done, than by palliatives, to mitigate some of the more distressing symptoms. This state of things continued for four or five months, with little or no material alteration; when, to the very great gratification of the patient, and no less to my surprise, the ball was discharged by stool, while under the operation of a cathartic which had been ordered to open the bowels. It was much flattened, which no doubt had been produced by its striking the vertebra of the neck. In this case, may not the ball have lodged between the upper and posterior part of the pharynx, and the bodies of the cervical vertebræ, and have made its way by ulceration, into the œsophagus, to the stomach? May not the pain, and constipation of the bowels have been produced, by the oxydation of the surface of the ball, and the oxyde of lead passing into the stomach, either with the food or saliva? From this time he recovered gradually, left the frontiers, and I have since been informed, has entirely recovered from the effects of his wound.

A Case of Aneurism with Singular Appearances.

By SAMUEL JACKSON, M. D. of Northumberland.

DEAR SIR,

IF the following case should appear to you less interesting than I have considered it, I hope you will excuse the trouble I am about to give you.

On the 23d, of January, I was requested by Dr. Dougal of Milton, to visit with him John Kelly, who was labouring under a disease of difficult diagnosis.

There was a large swelling in the right ham, reaching two thirds round the thigh, and extending upwards more than half its length, very tense, hard and painful. If there was any fluctuation, it was hardly perceptible. The knee was bent, and could not be extended; the calf of the leg enlarged, and very hard.

The patient, about twelve months before, had first observed two oblong swellings, one in the course of each hamstring, which were painful, and increased slowly until they coalesced. The general tumour then enlarged rapidly, and became extremely painful.

About ten years ago this leg was fractured below the knee, but was soon healed by the care of Dr. Dougal, and to all appearance completely restored. Some time afterwards a severe pain attacked the foot, unattended by fever or any apparent inflammation. Dr. Dougal exhausted his skill upon this complaint without effect, and afterwards all the practitioners in the neighbourhood were tried, but no relief was obtained. It however gradually subsided, and was probably relieved by the complaint we have been describing.

We were now to consider the case, and learn if possible the nature of the complaint, whether it was an aneurism or a collection of water or pus. There was no pulsation in the tumour, and the patient assured us there never had been; the pulse in the instep beat with entire regularity, as also at the wrist, without imparting any peculiar sensation to the fingers; and

we did not find any thing like aneurismal tumours in other parts of the body.

In this embarrassment we determined to make a valvular opening in the sac, with a small lancet, and ascertain the nature of the contained matter; if it proved to be pus or water, to let out a proper portion of it and heal the wound by the first intention; if blood, to perform the customary operation for aneurism.

The patient was placed on a table and the necessary instruments prepared for both operations. The puncture was made, and we had the pleasure of seeing it followed by a stream of turbid water. After running about three pints, it suddenly ceased; a probe was introduced and a little bloody water followed; a small injection pipe was next tried, which, to our great disappointment, brought away a full stream of blood.

The case was now plain, we had no doubt of its being an aneurism. The puncture, therefore, being secured by adhesive plaster, the artery was tied with ligatures and divided between them according to the practice of Mr. Abernethy.

The patient seemed to suffer less after, than before the operation; which was probably owing to the tension of the tumour being removed by the evacuation of water. We had, however, very slender hopes of his recovery. He was forty-four years of age, very much emaciated, with a constitution broken by intemperance. It was therefore, only the hope of finding the tumour filled with lymph or pus, that induced us to perform any operation.

The pulsation in the tibial artery never returned. The incision in the thigh, refusing to heal, suppurated very freely. Tonics and stimulants were used, but to no purpose. He gradually sunk, the leg became livid about the seventh day, and on the tenth he died.

The sac was found on dissection to be smooth and shining on the outside; on the inside roughly granulated, and filled with a substance which appeared to be a mixture of putrid pus and blood. And here it must be observed, that the tumour was in a state of inflammation, when the puncture was made, and would certainly have ulcerated in a short time.

Both the artery and vein were traced into the sac about

the middle of the thigh; it then passed upwards parallel with these vessels as high as the pelvis. The popliteal artery and vein, both communicated with it below. This artery was found closed and converted into a solid cord. The femoral vessels were found in a healthy state quite down to the sac.

The ligatures had been made according to the directions of Dr. Jones, and tied with great firmness; but it was found that no adhesion had taken place and that the inner coat of the artery had not been cut. The sac was taken out almost entire, but the disease was too far advanced to afford any argument either for or against the doctrine of Scarpa. But the most interesting circumstance remains to be mentioned.

Upon washing the sac, several small pieces of charcoal were found adhering to its inner surface. Some of them were as large as a chesnut, but probably most of them were lost, as the fetid contents of the sac were thrown into cold water and carried away without examination; for it was only at the second washing that this curious substance was found. At first I suspected that charcoal had been brought in with the water, but I was soon convinced of the contrary by the firmness with which some of the pieces adhered.

We have made no attempt to analyse this substance. It has all the characters of charcoal, and probably its origin may be ascertained, as the venous and arterial blood were continually mixing in the sac, each loaded with the different principles of that compound body.

I had hoped to have the pleasure of sending you a specimen, but Dr. Dougal informs me that he has sent the whole of it to Dr. Wistar, through the medium of his son, who is now attending your lectures.

I am well aware that some further observations might have been made on this case, but the patient was eight miles from Dr. Dougal, and twenty from myself, and therefore it was difficult for us to do more than merely perform our duty.

I cannot conclude this account of what has appeared to us an interesting and extraordinary case, without making some apology for the trouble I have given you, should it not be worthy the attention I have claimed for it. Situated in a populous city, you have many opportunities of observation, which en-

tirely escape the village practitioner, whilst your learning and abilities have placed you in that enviable station, so well described by Lucretius, from which you often behold us wandering in darkness, which the light of your happy experience might dissipate.

"Sed nil dulcius est benè quàm munita tenere
Edita doctrinâ sapientum templa serena;
Despicere unde queas alios, passimque videre
Errare, atque viam palanteis quærere vitæ.

I am, your affectionate and
obedient humble servant,
SAMUEL JACKSON.

Northumberland, March 6, 1817.

DR. J. S. DORSEY.

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*An attempt to point out a new, and successful Method of treating Mania à Temulentia.** By JOSEPH KLAPP, M. D., one of the Physicians of the Philadelphia Alms-House.

"I have always thought it a greater happiness to discover a certain method of curing, even the slightest disease, than to accumulate the largest fortune; and whoever compasses the former, I esteem him, not only happier, but wiser, and better too."—SYDENHAM.

HAVING many times remarked that the subjects of mania, in consequence of strong drink, are very apt to labour under a vomiting for several days before they become deranged, and that when the mental disease begins, the vomiting ceases; and having also observed if puking, spontaneously, or accidentally occurs, while a person is affected with this spe-

* When on the subject of amentia, I perceive that Sauvages applies to that kind of mental imbecility occasioned by ardent liquors, the very appropriate Latin expression of amentia à temulentia; I have conceived that "à temulentia" connected with "mania" would form a better epithet, than "mania a potu," the phrase in common use in this city to express insanity from drunkenness. The first will signify the whole cause of the disease; whereas the latter merely implies madness from drink without identifying the kind of drink.

cies of insanity, a period is shortly put to the disease. By these observations I was very readily led into the following reasoning. If spontaneous puking will prevent for several days, and even is able to cure mania of this kind, why would not the administration of suitable emetics produce similar good effects. In thus practising, would I not have a right to claim that encouragement which is derivable from a supposition that I was imitating nature, or treading in her footsteps.

To show how far this method of reasoning will accord with experience, the following cases are respectfully submitted.

Case I.

The first case I shall relate is that of A. B. a man fifty years of age, keeps a tippling shop, and has himself long been in the habit of the most liberal devotions to Bacchus. On the 17th of August, at one o'clock in the afternoon, I paid him a visit for the first time, when he was found in a state of considerable mental derangement. The history which was given of the origin and progress of his disease, is as follows. At first he was seized with a vomiting and purging, which continued more or less for four days, then ceased entirely: on the fifth day he became insane, and in this state he had continued three days to the time of my visiting him. During the whole time of his insanity he had slept none. In his case there was less of the subsultus, or tremor of the limbs, than is commonly remarked in this disease, but his delirious opinions appeared deeply impressed, and were advanced with a manner the most confident. When he was requested to disclose the circumstances which were disturbing his mind, he commenced by prefacing his narrative with a declaration made in the most emphatic manner, that what he had to state, he not merely knew to be true, but that he should conceive it to be his duty to prove it to be so. On my making a profession of the fullest confidence in his veracity, he appeared satisfied, and proceeded with his statement; but evidently actuated by that hurry of manner and rapidity of speech, the familiar characteristics of the lunatic. When his improbable, and very minute story was told, it was easy to observe, that his mind was deranged in

two of its operations. He perceived a number of objects then present which were not, and he judged that his house-keeper had been guilty of certain transactions of which she was quite innocent. The pulse was weak, and yielded one hundred and twenty pulsations in a minute. I prescribed half an ounce of the following solution, to be given every fifteen minutes, until full vomiting was produced.

℞ Tartrit. Antimonii, vulgo Tart. emetic. gr. xxiv.
Solve in aquæ calidæ unc. vj.—ft. solut.

At six o'clock in the evening I again visited him, when I was informed, that after four doses of the medicine had been given vomiting had ensued, and a great quantity of tough, viscid mucus and biliary matters were thrown up from the stomach; almost immediately after which he fell into a deep sleep, and did not awake for two hours and three quarters; then he had an occasion to rise to evacuate his bowels, at which time the family assured me he seemed rational. After being removed from the close-stool to the bed, he again went to sleep, and I left him in that state.

18th. At two o'clock P. M. I found him awake; previous however, to my entering his chamber, the house-keeper informed me, that ever since the operation of the emetic was over, he had generally been asleep, and that during the whole of the forepart of this day he had slept soundly. The tartarized antimony, as I have been accustomed to observe in the treatment of other cases of this disease, purged several times. The pulse was reduced in frequency to one hundred in a minute, and had become fuller. In the course of conversation with him, I hinted at the perturbated state his mind had been in during the last few days; he quickly made answer that he knew it well, and that he had a perfect recollection of every thing that had passed. To ascertain more fully what condition his memory had been in during his derangement, I asked him to relate to me the impressions which his mind had laboured under. Accordingly, he stated with accuracy and good sense every thing which he had communicated to me the day before, the reality of which, as I have before stated, he then pledged himself to prove; the whole of which, to make use of his own expression, he was now satisfied was nothing but a

phantom of the brain. In short my patient was in his perfect senses, and the operation of the antimony had left me nothing to do but to prescribe for debility.

19th. This day was spent in bed, and in sleep.

20th. The soporific effect which the antimony had occasioned, appeared to be subsiding, the mind proved quite sane, and the patient requested to have something to eat. I permitted him to have panado, or gruel, containing a small quantity of brandy, and weak wine and water for drink.

21st. My directions concerning diet had not been strictly adhered to: the patient had been very indiscreetly permitted to dine yesterday on rail; in the course of the afternoon I was informed he had complained of a sense of heaviness, and of some pain in the region of the stomach, and back; last night slight aberrations of the mind had again been noticed, and his rest had not been so comfortable. Suspecting that the stimulus of his yesterday's dinner had occasioned these symptoms, I desired the emetic solution to be repeated as before ordered.

22d. The medicine had operated freely after giving the third dose; the uneasy feelings about the stomach from that time ceased, and he slept comfortably through the night.

23d. The patient was found walking about the house in every respect apparently well, and I concluded that further attendance was not necessary.

Case II.

On the 16th of August I was requested to see Mr. C——, a grocer; he is about 40 years of age, and has long been an intemperate man. I had several times before seen him in a state of derangement, but at this time his insanity was more violent than it had ever been. He had made two or three attempts to destroy himself, and the constant aid of several persons was required to keep him in proper subjection. The tremor of his hands and arms, and indeed of his whole frame, was so great as to make it almost impossible to ascertain his pulse; but as near as I could perceive it was very weak, and frequent. His wife stated, that during the last three days he had not slept more than fifteen minutes at any one time; she was desirous to have him removed either to the alms-house, or hospital,

but I prevailed on her first to try the effect of a little medicine. Accordingly two grains of tartris antimonii, were advised to be given every quarter of an hour till vomiting was excited. This visit was at six o'clock A. M. At half past 10 o'clock of the same morning I called again, and was informed that the medicine had operated briskly both on the stomach and bowels; after he had puked a few times he became sleepy, and on going into his chamber I perceived he was in a deep sleep. In the afternoon my visit was repeated, when I found him still asleep. Directed a little stimulating gruel to be given to him now and then through the night.

21st. The mental affection had entirely ceased, but the propensity to sleep still continued: permitted a small quantity of spirit and water to be drank during the day.

21st. At my visit of this day I met with the patient down stairs, and completely recovered both in body and mind. Attendance discontinued.

Case III.

Mrs. M. the subject of the next case, is twenty years of age, and for the last few years has been unfortunately addicted to the excessive use of strong drink. I have attended the family of this lady for several years, and have remarked for some time past in my visits at her house, that she has had a bloated appearance, swelled hands, and a trembling of the limbs. Her appetite I was told had been very indifferent. On the 14th of August, I was requested to visit her: when I arrived it was stated, that during the previous six or seven days, she had laboured under sickness of the stomach, and frequent vomiting. Liquids, and substances of every kind, almost immediately after swallowing them, produced nausea and puking. The pulse was weak, and afforded about seventy-five vibrations per minute.

Directed the gastric region to be covered with a strong mustard poultice; when it had occasioned as much pain as the patient could bear, to remove it, and to dress the inflamed parts with sweet oil. Then to begin, and give half an ounce of the following mixture every hour, until the stomach becomes composed.

℞ Succ. limonis, unc. i.
Sal. tart. q. s. ad saturat.
Aq. menth. pip. unc. iss.
Aq. comm. unc. iii.—ft. mixt.

To drink seltzer water freely.

15th. The remedies had succeeded. Complained of costiveness, and transient pains in the bowels. Prescribed an ounce of castor oil.

16th. The bowels had not been moved; in the course of last night she began to imagine that the room, and the bed in which she lay, contained birds, snakes, and different frightful animals. These morbid perceptions produced such strange, and incoherent behaviour, as convinced her friends of her having been seized with insanity. When I spoke to her relative to her conduct in the night, she made light of it, and wished to pass it over with a laugh; but when she perceived I would not be put off, she replied, that her behaviour of which her friends had complained to me, had been the effect of a disturbed imagination, that it had been a dream, and that she no longer saw, nor believed in such things. Directed one of the following powders to be given every three hours so as to purge freely, and to encourage their operation by drinking freely of warm molasses and water.

℞ Solub. tartar.
Pulv. jalap. āā. dr. i.
M. ft. chart. iii.

In about three hours subsequent to my last visit, word was left at my office, that Mrs. M. had become violently deranged. In the middle of the day I again visited her, and was told that the family had not been able to confine her to her room; that for some time she had been running about in great agitation of mind from room to room, and from house to house, in the neighbourhood, to escape from terrifying objects, which she persisted in asserting were constantly pursuing her. When I was able to meet with her, it was evident that she was in a state of complete mental derangement. By a misapprehension of the directions, the powder had been given every half hour, but without effect. Conceiving it very necessary to have the bowels opened, I still adhered to the use of the purgative

medicine, and directed a pint of strong senna and manna infusion to be given to her; should this not prove sufficient to have recourse to enemata. In the evening the medicine operated two or three times, without producing any alleviation of the mental disease. Prescribed two grains of tartarized antimony dissolved in a little warm water, to be given every fifteen minutes until brisk vomiting is induced.

17th. Was informed that twelve grains had been exhibited before puking had occurred; shortly after the operation was over, she sunk into a sound sleep, and at the time of this visit, which was ten o'clock in the morning, she had not yet awoke. At half past four P. M. I found her awake, and in the full, and perfect possession of all her mental faculties. Pulse seventy-six in a minute, soft, and regular. The antimony had also purged her freely. On perceiving with great pleasure that I had completely gained my point, I withdrew; merely ordering the chamber to be kept quiet, and to give to the patient occasionally some gruel, containing a small quantity of brandy.

18th. The patient was about the house, sound in both mind and body.

20th. Mrs. M. had rode out, and was told, that with the exception of a slight vertigo she had remained well.

Case IV.

On the evening of the 2d of October, G. was admitted a patient into the alms-house, for mental derangement of the furibund grade, and satisfactorily ascertained to have been occasioned by the excessive use of ardent spirits. He is a carpenter by occupation, is about 40 years of age, and on inquiry I was told that for many years he had been a very intemperate man. Mr. Thum, the senior house pupil, assured me, that at the time of his admission he was not only violently insane, but he appeared to be so upon every subject. To prevent injury to himself it was found necessary, in addition to the use of the straight waistcoat, to have him closely chained to the floor of his cell. His pulse was frequent, and weak, and the trembling of his limbs was very great. He took two grains of the tartris antimonii dissolved in a little warm water every fifteen minutes; vomiting was not created until after twenty grains

had been administered, when a large quantity of viscid mucus, and sordes were brought up, and afterwards the bowels were smartly purged. After the operation of the antimony was over, Mr. Thum found that the pulse had become less frequent, and fuller. The patient had some sleep during the latter part of the night.

3d. He seems much better; pulse is as after the emetic; speaks correctly on some subjects, but remains evidently deranged on others. On entering his cell we found him very curiously employed: he was pressing with both arms, and apparently with all his strength, against the wall. I requested an explanation of his conduct, but he refused to give me his reason for doing so. The cell keeper afterwards informed me, that during the whole morning he had been bearing against the wall, through a fear, as G. had stated to him, that unless it was held up, it would certainly fall upon him, and crush him to pieces. I directed the tartarized antimony to be repeated.

4th. When sixteen grains had been given, first vomiting, and then copious purging ensued. On examination the pulse proved to be one hundred, and weak; he is plainly more rational in both conversation, and behaviour; in short it was rather difficult to discover that there was any of the mental affection remaining. In the course, however, of my conversation with him, it was perceived that his intellectual faculties had not been perfectly reinstated. Prescribed blister plasters to the ancles.

5th. Out of the last twenty-four hours he has slept eighteen, and is still inclined to sleep. When questioned about sleeping so much, seems conscious of his indolence, and apologized for it, by saying that the narrow limits of his cell would not admit him to take exercise, so he thought he might as well sleep as not. The blisters had not yet been dressed. By the test of conversation he this day proved rational, upon every subject. The tremor of the limbs have totally ceased, pulse remains rather too frequent, but has more strength than at any time heretofore. Nothing prescribed but some light diet.

6th. As yesterday, on my entering the cell, G. was still very comfortably reposing in bed; stated that his sleep had been uninterrupted through the night, and asserted, that with the

exception of a little weakness, he now felt as well as he had ever done. The debility of which he complained, he jestingly attributed to the fatigue he had incurred by the great exertions which he had made in holding up the walls of his cell. I embraced this favourable opportunity of asking him why he had put himself to that unnecessary trouble; he replied, that it had originated out of a flighty impression of his being at that time employed in erecting the partition of a large house, which required holding to prevent it from falling, at which deranged belief he seemed now much diverted. The pulse was one hundred, and had acquired fulness. He speaks sensibly on every subject, and gave me the following very amusing history of the beginning and advancement of his insanity. He asserted that it had been coming on better than a month, as far as his recollection would serve him; his first deranged impression occurred to him at night, while in bed with a fellow workman. Two men, as he supposed, had procured for themselves long iron hooks, with which they pulled off him the bed clothes, but he grasped them with his hands and brought the coverings over him again; after which they were however again and again dragged off the bed; this irritated him, and in a violent passion he jumped up to take revenge on these audacious fellows, who had so repeatedly attempted to deprive him of his rest. At first he endeavoured to get hold of their persons, but they had the address and activity to elude his grasp; though, while pursuing them around the room, he was several times on the very point of securing them. In regard to the actual presence of these mischief workers, there seemed to be no deception; for he plainly saw them skipping and running in different directions to avoid him, and he was only amazed at their superior activity. At one time he was almost certain of having one of them, for he came so near to him, as to catch hold of his long iron hook, the instrument with which he had been disturbed while in bed; at length, being much wearied by this unsuccessful chase, as a last effort to be revenged, he stooped down and picked up a stone which he sent at them with great force, but they again contrived to escape injury by making a sudden spring around the corner of the room. He now returned to his bed, but in a

short time afterwards, his attention was a second time powerfully excited by a full band of music, which had suddenly commenced playing in the street immediately before the door; he arose, and on opening the window to look out, he was unexpectedly surprised by the sight of a most splendid edifice, which had just been erected in the street; the building possessed many ornaments; among the rest, it had an elegant dome, which was covered with stars of the most brilliant kind. After gazing with indescribable admiration for some time at this grand fabric, he perceived two persons having hold of hands, dancing round each other in the cupola; instantly he recognized them to be the two men above alluded to; they called to him, and invited him to come and join them; which he did, and after dancing with them a short time, they asked him to accompany them to the theatre; with this request he also complied. The farce which was to be acted, was called *the broken bridge;* they wished him to perform the part of the carpenter, to repair the bridge, but this he refused to do, which so much affronted them as to induce them to attack him, and beat him very severely. These strange adventures, G. states were acted over two or three succeeding nights, when he become so unmanageable as to make it necessary for his friends to have him placed in the lunatic department of the alms-house. Of the inconsistency of his past opinion and conduct, described in his curious recital, no one could be more sensible than himself, or diverted with its folly. Being in every respect well, the patient requested his discharge, but was prevailed on to delay his departure a day or two longer. Directed Mr. Thum to allow him a little spirit and water for drink, and for sustenance to supply him with stimulating panado.

7th. Continuing to be well, I consented to his liberation.

Case V.

On the 19th of October, I was requested to visit Mrs. C. aged about twenty-five years, who was maniacal in consequence of recent intemperance. Her perceptions were much diseased, as she asserted that she saw persons and things, which were not present. At times, while acting from the im-

pulse of her mental errors, I was told she had been very resolute and difficult to manage. For the last two or three days she had slept none; her pulse was ninety-six and weak. Within the last twenty-four hours she had been afflicted several times with some kind of fits, and I could not determine from the imperfect description which was given to me, whether they were epileptic or hysterical. Having formed an opinion unfavourable to the use of emetics when this disease is complicated with epileptic fits, I feared it would be improper to administer the antimony in this case. The stimulating method of treatment was selected, and laudanum was directed to be given every hour until sleep was induced.

20th. She had slept none, notwithstanding a large quantity of the laudanum had been given, and her insanity did not abate until the stomach became sick by the medicine, and some puking ensued. The family stated, that from the period of her having vomited, her mind had experienced an unequivocal improvement. This unlooked for event proved a lucky accident for the patient, as it encouraged me to have recourse to the emetic. Accordingly, I prescribed two grains of the tartrite of antimony to be given in a little warm water every fifteen minutes, until the stomach was freely evacuated.

21st. Was informed, that after eight grains of the tartrite had been given, free and copious puking was excited, a great quantity of bilious sordes were brought up, and in a short time afterwards she sunk into an easy and natural sleep, which continued for several hours. When she awoke, her mental affliction seemed to have nearly subsided, and at the time of my seeing her this day, I do not hesitate to say, that both in conversation and conduct (at least so far as I could ascertain) she was not only rational, but reflecting. The fits with which she had been affected, had not been reproduced by the action of the emetic, and I now think it probable that they were only hysterical, as during this visit she mentioned to me, that for the last two months, she had laboured under a suppression of the menses.

22d. She has perfectly recovered her intellectual faculties; and with the exception of menstruation, which has taken place

since yesterday, she is apparently free from all bodily indisposition.

24th. Has had no return of mania, and my attendance ended.

A further detail of cases it is presumed would be unnecessary, and of course would be a useless consumption of time and paper. I trust enough has been said to render it at least probable, that in this description of insanity, emetics promise to the practitioner very superior advantages. In relation however to the method of treatment, I think it is necessary to state, that, in this disease, the stomach has usually proved to be in a very torpid insensible condition, and in some instances this has been the case to such a degree, as to require a scruple, and even twenty-eight grains of the tartarized antimony to be administered before puking could be excited. I have also found, that when the stomach could not be excited to vomiting by the antimony, or by such doses of it as was deemed safe to give, this effect has been happily produced by changing the article for ipecacuanha, but not until very large doses of the latter had been administered. In the generality of cases, I believe the antimony has operated both on the stomach and bowels; but when this was not the case, and commonly when the ipecacuanha had been used, I have found it useful to empty the bowels with some purgative medicine. That usually preferred is a combination of jalap and soluble tartar, as was directed in the case of Mrs. M.

What will be the success of this practice in the numerous varieties of this disease, at present it is out of my power to say; further experience has in reserve the answer to this important inquiry. It must, however, not be forgotten by those who may hereafter think proper to give it a trial, that it has been mostly in simple cases, uncombined with other diseases, in which I have used it; and in such I do not hesitate to recommend it as vastly superior to any other method ever used. In one instance where it had supervened upon dysentery, and the patient in an exhausted condition, I found the emetic of no use. In another complicated with erysipelas, and severe syphilitic symptoms, it succeeded, in the cells of our infirmary, speedily and perfectly. The patient was a young woman

who was seized with insanity while under Dr. Dorsey's care in the surgical ward.

To conclude, I think it will be admitted, that the several advantages of the above mode of practice, the inconsiderable trouble it occasions the physician, and the facility with which relief is procured for the patient, constitute a subject which presents the most ample scope for observation and reflection. But at the present time I shall content myself with merely making a further statement of a single fact; and that is, within the last few months, more than thirty lunatics have been restored to their reason and to society by the employment of emetics under my direction. Twenty of which cures, I consider myself as fortunate in having it in my power to say, have been accomplished under the notice of the medical students, who attended the practice of our infirmary during last summer, and the remainder in my private practice.

February 10, 1817.

P. S. Such of the faculty in any part of the United States, who may think proper to give the above mode of practice a trial, will confer a particular favour by transmitting to me an account of their experience.

MEDICAL AND PHILOSOPHICAL INTELLIGENCE.

THE NEW BLOW-PIPE.

MUCH interest appears to have been lately excited in England by Dr. Clarke's Experiments on the Blow-pipe, and the dangers of explosion attempted to be guarded against, by various contrivances. The following letter inserted in the Philosophical Magazine for December 1816, will show the importance attached to this interesting application of the gases in promoting fusion.

SIR,— The new blow-pipe, acting by a stream of condensed oxygen and hydrogen, has deservedly excited much interest: a detail of some experiments effected by means of this powerful instrument may prove interesting. I am following them up; and may merely mention, meantime, that the oxygen was obtained from *oxymuriate of potassa*, and the hydrogen from *zinc*, &c. The proportions, such as form the constituents of water:

1. PLATINUM as thick as a stocking wire was *instantly fused, scintillated*, and fell in a *large globule*.

2. PALLADIUM *fused instantly* and *slightly scintillated*.

3. A WATCH-SPRING melted with most *splendid corruscations*, fused into a *large globule*, and even BOILED *violently*.

4. Pure caustic ALUMINA and MAGNESIA burnt with *indescribable brilliancy*, exhibiting a *splendour of light rivalled only by the sun*.

5. Part of a TOBACCO-PIPE *burnt vividly*, and was fused into GLASS.

6. A piece of INDIGO exhibited a *beautiful* and *intense flame*.

7. A fine *electric* TOURMALIN grew *red hot, instantly fused, and flamed*.—It did not *forego* its *electric powers*.

8. The DIAMOND, in a groove of charcoal, was submitted to its influence:—In a short time it became *red hot*, then BURST INTO FLAME; and, when dislodged from its nidus, it fell upon the table, and continued a *second or two in actual flame*.

Through Dr. Clarke the chemist has received an agent of the most extraordinary powers of ignition. Anticipation augurs in "breathless expectation" the most brilliant results. Man is only in the infancy of his being!

I am, respectfully, Sir,

Your most humble servant,

J. MURRAY.

Surrey Institution, Dec. 24, 1816.

P. S. A mass of PERCARBURET of iron (plumbago) gave beautiful *minute sparks*, and was *fused*.

ROCK CRYSTAL *decrepitated violently*. At this moment an explosion of the condensed gases took place, and the instrument was rendered useless.

This accident suspends for the present a continuation of the experiments; but the chemist must smile at danger when such brilliant results rise up in prospective. J. M.

Process for Sweetening Musty Corn.

Mr. Hatchett communicated to the Royal Society at their sitting, December 5, 1816, a process for sweetening musty corn, in a letter to Sir Joseph Banks. Several years ago this philosopher was engaged in researches into the quality and products of wheat and barley; in consequence of which he discovered that musty grain, which was so bitter as to be totally unfit for use, and which could scarcely be ground, might be rendered perfectly sweet and sound by simply immersing it in boiling water and letting it remain till the water became cold. The quantity of water in this case was always double that of the corn to be purified. Mr. H. found that the musty quality rarely penetrated through the husk of the wheat, and that in the very worst cases it did not extend through the amylaceous matter which lies immediately under the skin. In the hot water all the decayed or rotten grain swims on the surface, so that the remaining wheat is effectually cleaned from all impurities, and this too without any material loss. The wheat is afterwards to be dried, stirring it occasionally on the kiln, when it will be found improved to an extent which can scarcely be believed without actual experience. The immense quantities of musty corn now in merchants' ware-houses or granaries belonging to

farmers, render these experiments highly valuable at the present crisis; and it is not doubted that, whatever may be the cavils of ignorance and inhumanity, the good sense of all those interested will lead them to adopt so easy, cheap, and effectual means of rendering their wheat or other grain from 10*s.* to 40*s.* a quarter more valuable. *Phil. Mag. for Dec.* 1816.

NEW FRIGORIFIC MIXTURE.

To Mr. Tilloch.

Sir,—Among the numerous mixtures which are attended with a diminution of sensible heat, a very convenient and effective one seems to have hitherto escaped the attention of chemists. It is that of snow and alcohol. The greatest effect appears to take place when equal weights of each are used, and I need scarcely add, that the precaution of effecting the solution in the least possible time is necessary to produce the maximum of cold.

The temperature both of the snow and alcohol being 32°, the solution in several experiments fell to — 17°, amounting to 49° of Fahrenheit. The alcohol was not of a very low specific gravity, so that I imagine it would not be difficult to produce at least an additional degree. The original communication not having reached you, and no memorandum having been preserved, I cannot now state what its strength was, nor does the season as yet admit of a repetition of the experiment; since the difference in the solubility of pounded ice and of snow will sensibly affect the results.

You will perceive that this circumstance explains the greater degree of cold generated by mixing snow with our strong wines, than by plunging the containing vessel into the ice and water.

I am, sir, your obedient servant,

J. MacCulloch.

Blackheath, Dec. 1816.

Ergot.

M. Virey in a communication to the French Academy of Sciences (formerly the Institute) states that the spur of the rye is not a *champignon* of the genus *Scleroticum*, as M. Decandolle had endeavoured to prove; but that it is a real disease of

the grain; since there are to be found in it all the peculiarities of organization of the rye, a degeneration as yet unknown in its nature, amylaceous fecula, and probably all the immediate materials of the Cerealia.—*Ibid.*

Oxalic Acid.

The number of subjects lately poisoned by the oxalic acid renders a more than ordinary degree of caution necessary on this subject. The principal use, we understand, to which this chemical preparation is applied, is to clean boot-tops; and, as it is not expensive, it is not only bought and sold with little reserve, but left about to be used when wanted. We have reason to believe that a large quantity is necessary to produce any dangerous effect, but the dose is far from being ascertained. It has usually been mistaken for Epsom salts, when any accident has happened. The account of the appearances after death are differently described; and, we suspect in this, as in other cases, sufficient distinction has not always been made between the destruction of the stomach and the neighbouring parts by the supposed poison and by the gastric juice. On this we are engaged in a few experiments, the result of which shall be recorded in our next. Meanwhile we shall be thankful for any well authenticated communications.

Lond. Med. and Phys. Jour.

A new French Pharmacopœia.

By an ordonnance of the King, bearing date the 8th August, 1816, the Codex Medicamentarius seu Pharmacopœia Gallica, ordered to be prepared by Napoleon in 1803, is forthwith to be printed; and, within the date of six months from its publication, every apothecary is bound to procure a copy, and always to prepare his medicines strictly according to the formula, under a penalty of 500 francs. Every copy is to be stamped, 1st, with the seal of the Faculty of Paris; 2d, with the signature of the president of the Faculty of Medicine at Paris; and 3d, with the bookseller's name. Every copy not so stamped and signed to be considered counterfeit, and the seller prosecuted by the King's attorney-general. It is a singular circumstance that there has been no French official Pharmacopœia published since the year 1748!—*Ibid.*

Notices respecting New Books.

The Second Part of the Philosophical Transactions of the Royal Society of London, for 1816, has just appeared, and the following are its contents:

11. An Essay towards the Calculus of Functions. Part ii. By C. Babbage, Esq. Communicated by W. H. Wollaston, M. D. Sec. R. S.—12. Experiments and Observations to prove that the beneficial Effects of many Medicines are produced through the Medium of the circulating Blood, more particularly that of the Colchicum autumnale upon the Gout. By Sir Everard Home, Bart. V. P. R. S. Communicated by the Society for improving animal Chemistry.—13. An Appendix to a Paper on the effects of the Colchicum autumnale on Gout. By Sir Everard Home, Bart. V. P. R. S.—14. On the cutting Diamond. By W. H. Wollaston, M. D. Sec. R. S.—15. An Account of the Discovery of a Mass of Native Iron in Brasil. By A. F. Mornay, Esq. in a Letter to W. H. Wollaston, M. D. Sec. R. S.—16. Observations and Experiments on the Mass of Native Iron found in Brasil. By W. H. Wollaston, M. D. Sec. R. S.—17. On Ice found in the Bottoms of Rivers. By T. A. Knight, Esq. F. R. S. In a Letter addressed to the Right Hon. Sir Jos. Banks, Bart. G. C. B. P. R. S.—18. On the Action of detached Leaves of Plants. By T. A. Knight, Esq. F. R. S. In a Letter addressed to the Right Hon. Sir Joseph Banks, Bart. G. C. B. P. R. S.—19. On the Manufacture of the Sulphate of Magnesia at Monte della Guardia near Genoa. By H. Holland, M. D. F. R. S.—20. On the Formation of Fat in the Intestine of the Tadpole, and on the Use of the Yelk in the Formation of the Embryo in the Egg. By Sir Everard Home, Bart. V. P. R. S.—21. On the Structure of the crystalline Lens in Fishes and Quadrupeds, as ascertained by its Action on polarized Light. By David Brewster, L L. D. F. R. S. Lond. and Edin. In a Letter to the Right Hon. Sir Joseph Banks, Bart. G. C. B. P. R. S.—22. Some further Account of the Fossil Remains of an Animal, of which a Description was given to the Society in 1814. By Sir Everard Home, Bart. V. P. R. S.—23. Further Observations on the Feet of Animals whose progressive Motion can

be carried on against Gravity. By Sir Everard Home, Bart. V. P. R. S.—24. A new Demonstration of the Binomial Theorem. By Thomas Knight, Esq. Communicated by W. H. Wollaston, M. D. Sec. R. S.—25. On the Fluents of irrational Functions. By Edward French Bromhead, Esq. M. A. Communicated by J. F. W. Herschel, F. R. S.

Dr. Spurzheim has been for a long time preparing for publication a work on Insanity with the following title, "Pathology of Animal Life, or the Manifestations of the Human Mind in the State of Disease termed Insanity." Every person who is acquainted with the very distressing conditions of persons afflicted with diseases of the mind, but particularly the insane poor, who are confined for the security of society in the melancholy cells of a madhouse, must be glad to hear that any new light is about to be thrown on this hitherto very obscure and incurable disorder. The public attention, too, has been particularly drawn towards this subject of late, by the very intimate scrutiny made into public lunatic asylums by persons invested with authority, before a committee of the house of commons:—an investigation rendered absolutely necessary by the shamefully neglected state of insane persons, and the general ignorance of the causes and cure of the disease itself;—an investigation, too, which has left the public mind in a state of alarm for the treatment of their unfortunate fellow-creatures. Dr. Spurzheim, who has devoted many years of his life, and has exercised the most powerful talents, in pursuing this disease through all its stages and varieties, and who has spared neither time nor expense in visiting the principal asylums for the insane in Europe, has at length determined to lay his labours before the public, with the hope that, since such a considerable progress in the knowledge of the physiology of the brain and the manifestations of the mind in a healthy state has of late been made, a great deal may yet be done for those who suffer from its partial or general derangement, by a philosophical comparison of a very numerous collection of cases, with the peculiar organization and moral habits of the individuals. The work will be published in the course of a few months.—*Tilloch's Philosophical Magazine.*

UNIVERSITY OF PENNSYLVANIA.

At a Commencement for conferring Degrees in Medicine and the Arts, held on the 10th of April, 1817, the Degree of Doctor of Medicine was conferred on the following gentlemen, their Theses being on the subjects specified below.

CANADA.

Basile Charlebois,	On the Regimen of Puerperal Women.
Thomas Boutillier,	Balsamum Canadense.

MASSACHUSETTS.

John Baxter, Jun.	Sweating as a Cure of Disease.
Winslow Warren,	Croup.

CONNECTICUT.

George Sumner,	Functions of the Kidney.

NEW JERSEY.

Ephraim Buck,	On Dyspepsia.

PENNSYLVANIA.

Thomas B. Evans,	On Splints.
W. H. Gillingham,	Hepatitis.
George Thum,	Growth.
Richard Randolph,	Suspended Animation.
Thomas Whitesides,	Uterine Hemorrhage.
John E. Espy,	On the Influence of the Digestive Organs, &c.
Azor L. Gregory,	Hepatitis.
A. A. Bertron,	Femoral Rupture.
Peter Cadwallader,	Collinsonia.
Jacob Sharpless,	Mania à Potu.
James M. Dougal,	Synocha Contagiosa.
Samuel Duffield,	Inguinal Hernia.
James A. Thackara,	Nicotiana.
William J. Clarke,	Trachitis.
Edward Haydock,	Phrenitis.

DELAWARE.

Charles Mendenhall,	Sympathies of the Stomach.
William Rumsey,	Respiration.
Jacob Moore,	Dropsy.

MARYLAND.

Henry Smith,	Cholera.
John K. Sappington,	Typhus Fever.
William Vanlear,	Dyspepsia.
William S. M'Pherson,	Dysentery.
William F. Harper,	Uterine Hemorrhage.
Samuel T. Kemp,	Pneumonia vera.

VIRGINIA.

Harden Massie,	Erysipelas.
James W. Paxton,	Pneumonia Typhoides.
Anderson Salle,	Hydrocephalus acutus.
Elias E. Buckner,	On the Principle of Life.
William Withers,	Cephalalgia.
Thomas Peete,	Cynanche Trachealis.
George Feild,	Cathartics.
Nathaniel Harrison,	Hepatitis acuta.
Edward H. Barton,	Epilepsy.
Robert Powel Page,	Diabetes.
Philip B. Thweatt,	Nicotiana.
Thomas P. Atkinson,	Hepatitis.
Robert R. Shore,	Bilious Colic.
Henry Clarkson,	Tetanus.
Thomas Martin,	Apocynum Cannabinum.
John Drish,	Arsenic.
John Bell,	Functions of the Liver.
Thomas T. Blackford,	Diabetes.
John Parke Street,	Compound Fractures.
Charles J. Payne,	Hydrocephalus acutus.
John Branch,	Remittent Fever.
Lewis W. Chamberlayne,	Intermittent Fever.
Samuel Wiles,	Typhus Pneumonia.
William D. Price,	Cortex Querci.
George W. Coleman,	Cynanche Trachealis.
Samuel W. Tompkins,	Fracture of Malleolus Internus.
Hubbard T. Minor,	Amenorrhœa.

NORTH CAROLINA.

Solomon B. Williams,	Apoplexy.
Wilie Perry,	Intermittents.

SOUTH CAROLINA.

William L. Kirkland,	Capsicum annuum.
Alexander Hume,	On Tumours.
John C. Tunno,	Popliteal Aneurism.
Benjamin Huger,	Dyspepsia.
Jacob D. Guerard,	Animal Poisons.
John W. M'Call,	Ligatures.
James H. B. Malcomson,	Oleum Terebinthinæ in Epilepsy.

GEORGIA.

William H. Cuyler,	Tetanus.
John Carter,	Cynanche Trachealis.
Charles D. Meigs,	Prolapsus Uteri.
William H. Pope,	Hydrophobia.

KENTUCKY.

George W. Smith,	Diseases, &c. of the Teeth.
Thomas P. Ross,	Diarrhœa.
Coleman Rogers.	

MISSISSIPPI TERRITORY.

William R. Coxe,	Hydrocephalus.

Abstract of the Bill of Mortality, for the Town of Boston, from the 31st of December, 1815, to the 1st of January, 1817; agreeably to the Record kept at the Health-Office.

Deaths in each Month.	*Males.*	*Females.*	*Totals.*
January, - -	44	47	91
February, - -	51	47	98
March, - -	45	38	83
April, - - -	39	48	87
May, - - -	42	30	72
June, - - -	29	24	53
July, - - -	33	28	61
August, - -	30	34	64
September, - -	33	41	74
October, - -	38	32	70
November, - -	23	37	60
December, - -	49	42	91
Totals,	456	448	904

AGES.				
Under	1	Year		186
From	1	to	2	68
	2	to	5	59
	5	to	10	29
	10	to	20	49
	20	to	30	142
	30	to	40	114
	40	to	50	88
	50	to	60	57
	60	to	70	49
	70	to	80	48
	80	to	90	18
	90	to	100	2
			Total,	904

The above mentioned Deaths were caused by the following Diseases and Casualties, to wit:

Abscess, . .	1	Fever Rheumatic,	3	Neurosis, . .	1
Apoplexy, . .	18	Pleurisy,	1	Old Age, . .	37
Burns, . .	3	Puerperal,	12	Palsy, . .	8
Cancers, . .	2	Pulmonic,	61	Phrenitis, . .	1
Casualty, . .	5	Typhus,	15	Polypus in the nose,	1
Cholera, . .	5	Fits, . . .	16	Quinsy, . .	16
Consumption, .	180	Hæmoptysia, .	1	Scalds, . .	2
Cramp, . .	2	Hæmorrhagia, .	1	Scarlatina anginosa,	1
Croup, . .	4	Hepatitis, . .	2	Scirrhous Liver, .	1
Cynanche Trachealis,	2	Hooping Cough,	9	Still-Born, .	31
Dyspepsy, . .	18	Hydrocephalus,	12	Sudden, . .	21
Diseases unknown,	84	Jaundice, .	3	Suicide, . .	4
Drowned, . .	12	Infantile Diseases,	195	Tetanus, . .	1
Dropsy, . .	12	Intoxication, .	3	White Swelling,	1
Dysentery, . .	6	Insanity, . .	2	Worms, . .	1
Elephantiasis, .	1	Marasmus, .	37		
Fever Inflammatory,	7	Measles, .	6		
Bilious, .	10	Mortification, .	13	Total,	904
*Malignant,	11	Murdered, .	2		

Published by order of the Board of Health,

NATHANIEL GREENOUGH, Secretary.

Boston, February 5, 1817.

☞ BOSTON lies in 42, 23, 15, N. lat. and 70, 52, 42, W. long.—The Census of 1810, in the month of August, states the number of inhabitants at 32,250.

*** The reader will see by the preceding official Bill of Mortality, that by the kindness of a good Providence, and the exertion made to diffuse the blessing of Vaccination through the town, not a single instance of mortality by *Small Pox* occurred in Boston during the last year. [*Boston Centinel.*

* *Ten* of these cases occurred in the Hospital on Rainsford Island.

ANNUAL REPORT OF INTERMENTS

In the city and county of New-York; commencing on the first day of January, and ending on the thirty-first day of December, 1816; shewing the ages, sexes, and diseases of the persons who died. Published by order of the Common Council.

1816.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
MEN, - - -	119	93	74	94	89	58	60	57	81	63	54	60	902
WOMEN, - - -	81	66	63	55	67	44	53	64	50	63	60	54	720
BOYS, - - -	73	39	44	39	37	32	54	66	62	57	50	50	603
GIRLS, - - -	73	45	42	46	32	23	46	53	41	26	39	48	514
TOTAL.	346	243	223	234	225	157	213	240	234	209	203	212	2739

CONTINUED.

AGES. OF WHOM WERE OF	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
The age of 1 year and under	61	33	36	37	33	25	59	61	48	43	36	50	522
Between 1 and 2	12	9	14	12	11	7	15	25	20	17	15	21	178
2 5	39	19	16	15	10	11	17	19	26	14	18	14	218
5 10	22	15	13	12	9	4	5	4	5	5	8	5	107
10 20	17	11	7	7	12	10	20	10	8	8	16	10	136
20 30	62	33	34	31	33	26	23	31	34	28	24	27	386
30 40	46	30	36	31	34	24	23	41	38	35	31	27	405
40 50	37	33	31	39	28	20	17	23	21	30	25	21	325
50 60	23	17	8	20	18	10	12	11	12	18	13	14	176
60 70	13	20	13	13	21	13	15	6	7	4	9	13	147
70 80	7	7	11	14	13	4	4	7	6	6	5	6	90
80 90	5	7	3	3	3	3	3	2	6	1	2	4	42
90 100	2	0	1	0	0	0	0	0	3	0	1	0	7
TOTAL.	346	243	223	234	225	157	213	240	234	209	203	212	2739

CONTINUED.

1816.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
DISEASES AND CASUALTIES.													
Abscess,	1	1	2	1	1	0	1	0	0	2	0	1	10
Aneurism,	1	1	0	0	1	0	0	0	0	0	0	0	3
Apoplexy,	5	4	5	5	2	8	4	2	3	5	3	7	53
Asphyxia,	0	0	0	1	0	0	0	0	1	0	0	0	2
Asthma,	1	0	1	2	1	1	0	0	0	0	1	3	10
Burned or Scalded,	1	0	1	2	1	0	1	0	1	0	1	5	13
Carbuncle,	0	0	0	0	0	1	0	0	1	0	0	0	2
Cancer,	0	1	0	1	0	1	0	1	3	1	1	2	11
Casualty,	2	2	2	4	2	1	1	1	2	2	1	0	20
Catarrh,	8	7	4	1	0	1	0	0	1	2	1	1	26
Child-bed,	0	1	2	2	3	1	1	2	2	4	2	2	22
Cholera Morbus,	1	0	0	1	2	2	1	10	6	1	0	0	24
Colic,	3	0	0	0	0	0	2	1	1	0	2	0	9
Compression of the Brain,	0	0	0	1	2	1	0	0	0	0	0	1	5
Consumption,	67	65	60	52	59	34	53	69	56	47	61	55	678
Convulsions,	24	9	13	17	15	8	16	15	7	6	13	14	157
CARRIED OVER.	114	91	90	90	89	59	80	101	84	70	86	91	1045

CONTINUED.

1816.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
BROUGHT OVER.	114	91	90	90	89	59	80	101	84	70	86	91	1045
Cramp in the stomach,	1	0	4	2	3	0	2	0	0	0	0	0	12
Diarrhœa,	0	2	1	0	0	0	2	5	9	1	1	0	21
Drinking cold water,	0	0	0	0	0	1	0	0	0	0	0	0	1
Dropsy,	8	14	4	9	8	7	7	6	7	8	5	7	90
Dropsy in the chest,	1	2	2	3	4	1	2	2	1	0	0	2	20
Dropsy in the head,	9	8	8	6	10	9	6	9	10	6	11	9	101
Drowned,	3	1	4	8	4	7	6	5	7	4	2	1	52
Dysentery,	4	2	0	0	2	0	10	10	22	13	6	2	71
Dyspepsia,	0	0	0	0	1	1	0	0	0	0	0	0	2
Epilepsy,	0	0	0	1	1	0	1	1	0	0	0	1	5
Erysipelas,	0	1	0	1	1	0	0	0	1	0	0	0	4
Executed,	1	0	0	0	0	0	0	0	0	0	0	0	1
Fever,	2	2	1	3	0	0	0	2	1	1	0	0	12
Fever, bilious,	0	0	0	0	1	0	0	1	1	1	0	0	4
Fever, hectic,	0	0	1	0	2	0	0	1	0	1	1	0	6
Fever, inflammatory,	0	0	0	0	0	1	0	0	1	0	0	0	2
CARRIED OVER.	143	123	115	123	126	86	116	143	144	105	112	113	1449

CONTINUED.

1816.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
BROUGHT OVER.	143	123	115	123	126	86	116	143	144	105	112	113	1449
Fever, intermittent,	1	1	0	1	1	0	1	0	0	0	0	0	5
Fever, puerperal,	1	1	0	1	0	0	0	0	0	0	0	3	6
Fever, remittent,	0	0	2	0	2	0	2	0	0	2	2	0	10
Fever, typhus,	4	2	6	6	9	8	7	9	15	12	15	7	100
Flux, infantile,	0	0	0	0	0	0	0	0	0	0	0	1	1
Fracture,	0	0	0	0	0	0	2	1	1	1	0	0	5
Frozen,	0	0	0	0	0	0	0	0	0	0	0	1	1
Gout,	0	1	1	1	0	0	0	0	0	0	0	1	4
Gravel,	1	0	0	1	1	0	0	1	0	0	0	0	4
Hæmorrhage,	0	0	0	0	1	0	0	1	0	2	1	1	6
Hæmoptysis,	0	1	1	0	2	0	0	0	0	0	2	2	8
Herpes,	0	0	0	0	0	0	0	0	0	1	0	0	1
Hives or Croup,	12	11	8	8	6	2	9	3	4	7	5	7	82
Jaundice,	0	1	1	0	1	2	1	1	0	1	1	2	11
Iliac Passion,	0	0	0	0	0	1	0	0	0	0	0	0	1
Infanticide,	0	1	0	0	0	0	0	0	2	0	0	0	3
CARRIED OVER.	162	142	134	141	149	99	138	159	166	131	138	138	1697

CONTINUED.

1816.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
BROUGHT OVER.	162	142	134	141	149	99	138	159	166	131	138	138	1697
Inflammation of the Bladder, . .	0	0	0	1	0	0	0	0	0	0	0	0	1
Inflammation of the Bowels, . .	3	3	2	7	9	6	2	7	3	3	0	5	50
Inflammation of the Brain, . .	4	1	1	2	1	1	1	1	1	2	0	1	16
Inflammation of the Chest, . .	1	3	2	7	6	6	4	1	2	7	3	7	49
Inflammation of the Liver, . .	1	0	2	1	0	1	2	2	0	5	1	2	17
Inflammation of the Stomach, . .	0	0	0	0	0	1	0	0	0	1	1	0	3
Influenza, ...	1	0	0	0	0	0	0	0	0	0	0	0	1
Insanity, ...	2	0	1	0	0	2	1	0	3	0	0	3	12
Intemperance, ...	5	3	0	2	2	4	1	1	0	3	7	2	30
Killed or Murdered, . . .	1	0	0	1	1	0	0	0	0	0	1	0	4
Locked Jaws, ...	1	1	0	0	0	2	1	0	1	1	1	0	8
Lumbar Abscess, ...	1	0	1	0	0	0	0	1	0	0	0	1	4
Marasmus, ...	0	1	2	1	0	1	0	0	0	0	0	0	5
Measles, ...	1	0	0	0	0	1	0	3	1	1	4	6	19
Mortification, ...	0	0	0	0	1	1	1	3	3	3	2	4	17
Nervous Disease, ...	1	0	0	0	2	0	1	1	0	0	1	0	6
CARRIED OVER.	184	154	145	163	171	125	152	179	180	158	159	169	1939

CONTINUED.

1816.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
BROUGHT OVER.	184	154	145	163	171	125	152	179	180	158	159	169	1939
Old Age,	11	9	9	8	8	2	3	3	8	2	6	4	73
Palsy,	3	1	5	1	2	3	1	0	1	3	1	1	22
Peripneumony,	4	0	4	3	1	0	4	1	1	0	0	0	18
Pleurisy,	13	9	11	13	13	2	7	2	6	5	1	3	85
Pneumonia Typhodes,	1	5	2	9	11	3	2	0	1	0	2	0	36
Quinsy,	1	0	0	0	0	0	0	0	0	1	3	0	5
Rheumatism,	1	1	1	0	0	0	1	0	2	1	0	1	8
Rickets,	1	0	0	0	0	0	0	0	0	0	0	0	1
Rupture,	0	0	1	0	1	0	0	0	0	0	0	0	2
Schirrus of the Liver,	0	0	0	0	0	0	2	0	0	0	0	0	2
Scrofula, or the king's evil,	0	1	1	1	1	2	1	0	0	0	0	2	9
Small Pox,	98	40	20	10	5	2	2	1	1	0	0	0	179
Sore Throat,	1	0	0	0	0	0	1	2	0	0	0	0	4
Sprue,	1	1	1	2	0	2	4	4	2	3	0	3	23
Still-born,	8	5	5	6	6	4	14	10	5	7	6	12	88
Strangury,	0	0	1	0	0	0	1	1	0	0	0	0	3
CARRIED OVER.	327	226	206	216	219	145	195	203	207	180	178	195	2497

CONTINUED.

1816.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
BROUGHT OVER.	327	226	206	216	219	145	195	203	207	180	178	195	2497
Sudden Death, ...	2	1	1	2	0	1	4	1	0	1	1	2	18
Suicide, ...	0	1	0	5	0	0	1	4	0	2	2	0	15
Syphilis, ...	0	2	3	2	0	1	0	1	2	0	0	0	11
Tabes Mesenterica, ...	1	1	2	1	0	0	3	5	8	13	10	3	47
Teething, ...	0	0	2	4	1	1	2	7	6	4	2	2	31
Vomica, ...	0	0	0	0	0	1	0	0	0	0	0	0	1
Ulcer, ...	0	1	0	0	0	0	0	1	1	0	0	0	3
Unknown, ...	0	2	1	2	2	5	6	13	4	6	0	6	47
Whooping Cough, ...	13	4	7	0	2	2	1	3	3	2	4	3	44
Worms, ...	2	5	1	1	1	1	1	2	3	1	6	1	25
TOTAL.	346	243	223	234	225	157	213	240	234	209	203	212	2739

REMARKS.

The City Inspector respectfully reports to the Board, a statement of the deaths, in the city and county of New-York, for the Year 1816.

The number of deaths were two thousand seven hundred and thirty-nine, being an excess of two hundred and thirty-two, over what took place in the preceding year. This increase in the deaths may be accounted for,—from the increased population in the city,—from the ravages of that pestilent epidemic the *Small Pox*, which carried off in 1816, eighty-five persons more than those which became its victims in 1815; and also, from returns of deaths being made at his office, by some sextons in distant parts of the island during the last year, who had neglected to perform this necessary part of their duty before that period. From these united considerations the City Inspector is of opinion, that the city has been generally as healthy as heretofore, with the exception of the first months of the past year, which were unusually mortal; in January especially, ninety-eight persons died of the '*Small Pox*' alone, among whom was an aged woman of 97 years, a melancholy proof of the weakness of human nature, particularly in a city, where an institution exists, capable, by vaccination, of averting the horrors of that loathsome and deadly disease, and thereby preserving so many valuable lives.

The City Inspector observes that the number of '*Consumptive*' cases were six hundred and seventy-eight, exceeding by sixty, that which took place in 1815; he is of opinion that many cases were returned '*Consumptive*' which should have been reported under other heads; in children, particularly, worms are known to be fatal, they pine under their influence, and are, from their changing symptoms, frequently misunderstood and therefore returned inaccurately. In adults also, many cases reported in like manner as '*Consumptive*,' in reality spring from *irregularities*, which the feelings of relations and friends induce to class in this general and sweeping complaint; thus covering their infirmities from the public observation,

under the operation of very natural, and perhaps not unpraiseworthy motives.* GEORGE CUMING,

CITY INSPECTOR.

New-York, January 13, 1817.

By a report of Deaths in the Borough of Harrisburgh, Pennsylvania, from January 1, 1816, *to Jan.* 1, 1817, *furnished by Dr. Joseph Kelso, it appears that the whole number was fifty-six. The diseases noticed are:—*

Abscess of the Lungs,	1
Bilious Fever,	6
Child Bed,	3
Consumption,	6
Colic,	1
Cholera Infantum,	3
Dropsy,	2
Fits,	7
Hives,	2
Inflammatory Fever,	1
Jaundice,	4
Marasmus,	1
Old Age,	3
Palsy,	2
Pleurisy,	1
Small Pox,	1
Typhoid state of fever,	2
Besides—Drunkenness,	4
Still Born,	4
Sudden,	1
Unknown,	1
	56

The Population of Harrisburgh is estimated at three thousand two hundred persons.

* Until the above judicious remarks are more carefully attended to, we cannot expect an accurate list of the cases of pulmonary consumption.

Editors.

Statement of Deaths, with the diseases and ages, in the City and Liberties of Philadelphia, from the 1st of January 1816, to the 1st of January 1817.

DISEASES.	Under 1 year	From 1 to 2	From 2 to 5	From 5 to 10	From 10 to 20	From 20 to 30	From 30 to 40	From 40 to 50	From 50 to 60	From 60 to 70	From 70 to 80	From 80 to 90	From 90 to 100	From 100 to 110	Total
Aphthæ	6	0	0	1	0	0	0	0	0	0	0	0	0	0	7
Asthma	1	0	1	0	2	2	1	3	3	0	1	2	0	0	16
Abscess	1	1	0	1	0	0	0	3	1	1	1	0	0	0	9
Aneurism	0	0	0	0	0	0	3	1	0	0	0	0	0	0	4
Apoplexy	0	0	0	0	0	2	7	6	4	11	5	1	0	0	36
Atrophy	7	3	2	0	2	0	0	5	1	2	5	2	0	0	29
Angina Pectoris	0	0	0	0	1	0	1	1	1	0	0	0	0	0	4
Burns	1	2	4	2	0	2	2	1	0	2	1	0	0	1	18
Cancer	0	0	0	0	0	1	2	3	5	1	0	2	0	0	14
Casualties	0	0	0	0	0	5	3	7	0	0	1	1	0	0	17
Catarrh	17	10	10	2	1	1	2	0	1	1	1	0	0	0	46
Child Bed	0	0	0	0	*1	4	3	1	0	0	0	0	0	0	9
Cholera Morbus	27	38	20	2	0	1	0	0	0	2	0	0	0	0	90
Colic	1	0	0	0	0	0	2	1	0	0	1	0	0	0	5
Consumption of the Lungs	9	13	9	10	17	91	113	104	31	27	9	1	0	0	434
Convulsions	111	0	8	2	4	3	4	6	5	0	0	2	0	0	167
Curved Spine	0	22	1	0	0	0	0	0	0	0	0	0	0	0	1
Caries	0	0	0	0	1	1	0	0	1	0	0	0	0	0	3
Cachexy	1	0	1	1	0	0	0	1	0	2	0	0	0	0	6
Compression of Brain	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Decay	9	2	2	1	1	6	0	3	4	4	4	2	1	0	39
Diarrhœa	1	1	4	0	0	1	10	3	10	2	1	0	0	0	33
Dropsy	2	0	1	2	2	2	6	7	11	10	5	3	1	0	52
of the Breast	0	0	0	2	0	2	3	6	4	2	1	1	0	0	21
in the Brain	10	18	18	32	2	0	1	1	0	0	0	0	0	1	83
Drowned	0	0	1	2	2	5	19	2	1	2	0	0	0	0	34
Dysentery	6	4	5	4	1	1	3	1	4	1	0	0	0	0	30
Drunkenness	0	0	0	0	0	1	4	2	1	0	0	0	0	0	8
Disease in Hip Joint	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Debility	17	3	1	13	2	1	5	6	2	2	5	1	0	0	58
Dislocation	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Epilepsy	0	0	1	0	0	1	2	0	1	0	0	0	0	0	5
Erysipelas	6	0	1	0	1	1	5	1	1	3	0	0	0	0	19
Fracture	0	0	0	0	0	2	0	0	2	0	0	0	0	0	4
Fever	1	2	3	1	3	6	6	10	2	2	1	0	1	0	38
Intermittent	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2
Remittent	0	0	0	5	1	2	4	3	1	1	3	1	1	0	22
Bilious	1	0	0	1	4	2	4	2	1	1	1	0	0	0	17
Nervous	0	0	1	1	2	0	0	0	1	0	1	0	0	0	6
Malignant	0	0	1	0	0	0	0	0	1	0	0	0	0	0	2
Typhus	0	0	1	1	2	18	24	11	8	9	3	0	1	0	78
Puerperal	0	0	0	0	1	13	8	2	0	0	0	0	0	0	24
Hectic	0	0	0	0	0	0	1	1	2	0	0	0	0	0	4
Inflammatory	0	0	2	0	0	1	0	0	1	0	0	0	0	0	4
Carried over,	229	119	98	87	54	178	248	205	112	89	50	19	5	2	1501

* Eighteen years of age.

	Under 1 year	From 1 to 2	From 2 to 5	From 5 to 10	From 10 to 20	From 20 to 30	From 30 to 40	From 40 to 50	From 50 to 60	From 60 to 70	From 70 to 80	From 80 to 90	From 90 to 100	From 100 to 110	Total
Brought forward,	229	119	98	87	54	178	248	205	112	89	50	19	5	2	1501
Gangrene and Mortification	1	2	1	4	1	3	4	3	1	2	0	1	0	0	23
Gout	0	0	0	0	0	1	1	0	1	3	0	1	0	0	7
Gravel	0	0	0	0	0	0	1	2	0	0	1	0	0	0	4
Hooping Cough	15	10	18	2	1	0	0	0	0	0	0	0	0	0	46
Hives	13	4	11	2	0	0	0	0	0	0	0	0	0	0	30
Hernia	0	0	0	0	0	0	1	0	0	1	0	0	0	0	2
Hæmorrhage	0	0	0	0	0	4	3	0	1	1	0	1	0	0	10
Hydrophobia	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Inflammation of the Brain	1	0	1	5	2	5	3	2	2	0	2	0	0	0	23
of the Lungs	7	1	2	0	2	1	1	2	1	2	0	1	0	0	19
of the Stomach	0	1	2	0	0	0	3	0	1	0	1	0	0	0	8
of the Bowels	9	1	2	1	2	3	1	5	1	2	0	0	0	0	27
of the Liver	2	1	0	1	0	2	4	6	1	1	0	0	0	0	18
of the Bladder	0	0	0	0	1	0	0	1	1	0	0	1	0	0	4
Insanity	0	0	0	0	0	4	15	5	3	0	0	0	0	0	27
Jaundice	0	0	0	0	0	1	0	1	0	1	0	0	0	0	3
Lethargy	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Measles	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2
Murdered	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Old Age	0	0	0	0	0	0	0	0	0	0	8	34	10	3	55
Pleurisy	17	7	8	4	2	17	34	12	17	8	2	2	0	0	130
Palsy	1	0	1	0	1	1	2	0	5	5	3	3	0	0	22
Pistol Shot Wound	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Rickets	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Rheumatism	0	0	0	0	0	1	3	1	0	1	0	0	0	0	6
Scrofula	0	1	1	2	3	1	1	0	2	0	0	0	0	0	11
Sore Throat	4	1	4	1	0	3	2	0	2	2	0	0	0	0	19
Still Born	94	0	0	0	0	0	0	0	0	0	0	0	0	0	94
Suicide	0	0	0	0	1	1	4	2	0	0	0	0	0	0	8
Sudden	4	0	0	1	0	5	11	6	1	6	0	0	0	0	34
Syphilis	0	0	0	0	0	5	3	0	0	0	0	0	0	0	8
Strangury	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Small Pox natural	15	5	13	16	9	25	8	4	1	1	0	0	0	0	97
Spina Bifida	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Teething	8	10	5	0	0	0	0	0	0	0	0	0	0	0	23
Tabes	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Ulcers	0	0	0	0	0	1	0	0	0	1	0	0	0	0	2
Worms	0	4	4	4	0	0	0	0	0	0	0	0	0	0	12
Unknown	6	0	0	0	0	9	12	8	1	0	0	0	0	0	36
Total,	432	168	171	133	81	272	366	265	154	126	68	63	15	5	2319

NOTE. Of the above there were 703 males of twenty years and upwards, 450 under twenty years: of females, 585 of twenty years and upwards, 399 under twenty years; and 182 children, principally under one year, whose sex is unknown.

Deaths in each month of the above period.

	Adults.	Children.	*Total.*
January	99	82	181
February	118	83	201
March	105	88	193
April	109	69	178
May	108	75	183
June	135	91	226
July	131	97	228
August	113	123	236
September	100	106	206
October	97	95	192
November	82	60	142
December	98	55	153
Total	1295	1024	2319

By order of the Board of Health,

JOHN ALLISON, Clerk.

Health Office, February 7th, 1817.

Abstract of the Bills of Mortality, for the City and Precincts of Baltimore, from the first day of January, 1816, to the first of January, 1817; taken from the Record in the Office of the Commissioners of Health.

Deaths in each Month.	*Males.*	*Females.*	*Totals.*
January, - -	59	50	109
February, - -	59	51	110
March, - -	57	55	112
April, - -	57	38	95
May, - -	54	30	84
June, - -	56	31	87
July, - -	59	43	102
August, - -	107	105	212
September, - -	73	65	138
October, - -	36	44	80
November, - -	58	52	110
December, - -	43	35	78
Totals,	718	599	1317

AGES.				
Under	1	Year		477
From	1	to	2	73
	2	to	3	64
	3	to	5	40
	5	to	10	54
	10	to	20	166
	20	to	30	176
	30	to	40	102
	40	to	50	53
	50	to	60	41
	60	to	70	26
	70	to	80	37
	80	to	90	5
	90	to	100	2
	100	to	110	1
			Total,	1317

The above mentioned Deaths were caused by the following Diseases and Casualties, to wit:

Apoplexy,	5	Inflammation of the Liver,	5
Asthma,	2	Insanity,	3
Cancer,	4	King's Evil,	2
Casualties,	27	Lock Jaw,	2
Cold,	11	Measles,	7
Child Bed,	26	Mortification,	17
Cholera Morbus,	132	Mumps,	1
Colic (Bilious)	5	Murder,	2
(Cramp)	11	Old Age,	54
Consumption,	250	Palsy,	10
Croup,	39	Pleurisy,	75
Dropsy,	33	Quinsy,	3
in the Brain,	3	Rheumatism,	3
Drowned,	20	Sore Throat,	1
Dysentery,	12	St. Anthony's Fire,	10
Fever (Bilious)	50	Small Pox,	2
(Nervous)	5	Stillborn,	78
(Typhus)	28	Sudden Death,	9
Fits,	91	Suicide,	1
Flux,	5	Teething,	3
Gout,	3	Unknown,	54
Gravel,	2	Venereal,	1
Hemorrhage,	6	Worms,	76
Hooping Cough,	105	White Swelling,	2
Jaundice,	7		
Inflammation,	3	Total,	1317
(of the brain)	2		

By order of the Board of Health,

SAMUEL YOUNG, Secretary.

☞ The City and Precincts of *Baltimore*, are now supposed to contain upwards of 60,000 inhabitants.

Statement of Deaths, with the Diseases and Ages, in the city and vicinity of Charleston, (S. C.) from the first of October, 1815, to the first of October, 1816.

Deaths in each Month.	*Adults.*	*Children.*	*Totals.*
October,	54	24	78
November,	34	22	56
December,	22	36	58
January,	61	29	90
February,	47	25	72
March,	55	28	83
April,	50	22	72
May,	66	28	94
June,	48	32	80
July,	41	24	65
August,	42	24	66
September,	47	15	62
Totals,	567	309	876

AGES.				
Under	3	Years		145
From	3	to	10	83
	10	to	20	95
	20	to	30	162
	30	to	40	126
	40	to	50	87
	50	to	60	62
	60	to	70	49
	70	to	80	32
	80	to	90	29
	90	to	100	2
	100	to	110	4
			Total,	876

Of the above, there were 483 Males, 393 Females. Total, 876

Of these, there were of Whites, 332; Blacks and colored, 544. Total, 876

The above mentioned Deaths were caused by the following Diseases and Casualties, viz:

Abscess,	2	Fever, Catarrhal,	9	Rickets,	1
Accident,	13	Nervous,	11	Rheumatism,	2
Aneurism,	1	Typhus,	21	Rupture of Blood Vessel,	1
Apoplexy,	16	Worm,	38	Scrophula,	1
Asthma,	4	and Ague,	2	Scurvy,	2
Atrophy,	1	Hæmorrhage,	1	Small-Pox,	15
Bowel Complaint,	46	Hydrocephalus,	1	Sore Throat,	7
Cancer,	13	Influenza,	34	Sore Throat, putrid,	2
Childbed,	15	Inflammation of the Lungs,	1	Spasm,	10
Colic,	1	Eruption,	1	Still Born,	9
Cholera Morbus,	1	Insanity,	9	Stricture,	1
Cold,	18	Intemperance,	4	Stroke of the Sun,	1
Consumption of the Lungs,	149	King's Evil,	1	Suicide,	3
Convulsions,	43	Liver Complaint,	3	Teething,	29
Croup,	10	Lock-Jaw,	5	Thrush,	1
Debility,	83	Mortification,	5	Violence,	4
Diarrhœa,	1	Old Age,	51	Unknown,	4
Dropsy,	49	Palsy,	5	Hooping Cough,	4
Dropsy in the Head,	5	Paralytic,	1		
Drowned,	7	Phthisic,	2		
Dysentery,	21	Pleurisy,	22		
Fever,	27	Pneumonia,	1	Total,	876
Bilious,	38	Quinsy,	1		

☞ The Population of the City of *Charleston* and its Vicinity, is computed at about from 32 to 35,000 souls.

LIST OF RECENT MEDICAL PUBLICATIONS.

Institutions of Physiology, by Professor Blumenbach; a new edition with extensive notes, by John Elliotson, M.D.

An Inquiry into the Effects of Spirituous Liquors on the Physical and Moral Faculties of Man, and on the Happiness of Society.

A Practical Synopsis of Cutaneous Diseases, according to the arrangement of Dr. Willan, &c. &c. By Thomas Bateman, M.D. F.R.S. &c. Fourth edition, octavo. Plates.

Observations on the Structure of the Brain; comprising an estimate of the claims of Drs. Gall and Spurzheim to discovery in the Anatomy of that Organ. By John Gordon, M.D. F.R.S. Ed. &c. &c.

An Experimental Enquiry into the Effects of Tonics and other Medicinal Substances on the cohesion of the Animal Fibre. By the late Adair Crawford, M.D. F.R.S. Edited by Alexander Crawford, M.D. London, 1816.

Medico-Chirurgical Transactions, published by the Medical and Chirurgical Society of London, Vol. VII. 1816.

A treatise on Uterine Hæmorrhage, by Duncan Stewart, M.D. London, 1816.

Minutes of Cases of Cancer and Cancerous Tendency, successfully treated, by Samuel Young, Surgeon; with a prefatory letter, by S. Whitbread, Esq. M.P. Second edition. London, 1816.

Outlines of Geology, by W. T. Brande, F.R.S. Professor of Chemistry, Royal Institute.

Transactions of the Medical Society of London, Vol. I. Part I.

Practical Observations on the Diseases of the Urinary Organs, by John Howship, member of the Royal College of Surgeons. 8vo. with four coloured plates.

Surgical Observations, part II. by C. Bell. 8vo.

Medical Suggestions for the Treatment of Dysentery, Intermittent and Remittent Fevers, as generally prevalent at certain seasons among Troops in the Field. By E. S. Somers, M.D. 8vo.

An Essay on the common cause and prevention of Hepatitis, by Charles Griffith, M.D. 8vo.

Essay on the Origin, Progress and present State of Galvanism, by M. Donovan.

Rudiments of the Anatomy and Pathology of the Human Body, by T. J. Armiger. London, 1816.

A Treatise on the Nature and Cure of Gout, &c. by Charles Scudamore, M.D. London, 1816.

Memoire sur la Complication des Plaies et des Ulcères connues sous le nom de pourriture d'hôpital, par J. Delpech; suivie d'un rapport, &c. Paris.

Essai sur l'Hygiene Militaire des Antilles, par Alex. Moreau de Jonnés. Paris, 1816.

Precis Historique sur l'irruption de la Fievre Jaune à la Martinique, en 1802. (by the same.) Paris, 1816.